Meridian 1 and Succession Communication Server for Enterprise 1000

Meridian 1 Guide for the UK

Options 11C - 81C

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Revision history

January 2002

Standard 9.00. This document is up-issued to include content changes for Meridian 1 Release 25.40.

April 2000

Standard 8.00. This is a global document and is up-issued for X11 Release 25.0x. Document changes include removal of: redundant content; references to equipment types except Options 11C, 51C, 61C, and 81C; and references to previous software releases.

September 1999

Standard 7.00. Incorporated Option 11C and Option 11C Mini UK-specific information into this guide.

November 1997

Standard 6.00 issued for X11 Release 23.0x

September 1996

Standard 5.00 issued for X11 Release 22.0x.

December 1995

Standard 4.00 issued for X11 Release 21.0x

May 1995

Standard 3.00 issued for X11 Release 20.0x

January 1995

Standard 2.00.

February 1994

Standard 1.00.

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About this document

This document applies to the Meridian 1 Internet Enabled system.

This document is a regional document. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described is supported in your area.

Who should read this guide

The Meridian 1 UK Guide is for personnel responsible for installing and maintaining a Meridian 1 system in the United Kingdom (UK).

This guide is used with the Meridian 1 suite of documents. Some of the information and procedures in the Meridian 1 documents do not apply directly to the UK market. This document provides the additional information required to install and maintain a Meridian 1 system in the United Kingdom:

How this guide is organized

This guide contains the following information for the UK, for system Options 11C-81C:

- applicable features and hardware
- loss plan and signalling schemes
- ports available
- how to use Meridian 1 documents in the UK
- glossary of North American and UK terms
- site requirements and planning
- Meridian 1 hardware installation

- Attendant Console installation
- Meridian 1 software configuration

How to use this guide

The Meridian 1 Guide for the UK contains the following chapters:

- **General information for the** UK lists the features and hardware that are supported in the UK. It also provides the loss plan, signalling schemes, ports used, and how to use Meridian 1 documents.
- **NT5K17, NT5K18, and NT5K19** describes Direct Dialing Inward trunk card, Exchange Line trunk card, and Analog TIE trunk card features.
- **Planning the site and preparing for installation** contains information for preparing the site for installation. Also, use the *Installation Planning* (553-3001-120) and *System Installation Procedures* (553-3001-210) for additional information.
- **Installing a new system** provides an outline for system installation in the UK. Most of the detailed Meridian 1 installation procedures are provided in the *Installation Planning* (553-3001-120) and *System Installation Procedures* (553-3001-210). Some procedures, however, are different for the UK and are provided at the end this section.
- **Connecting the M2250 Attendant Console** contains information for installing the M2250 Attendant Console. Also refer to *Telephone and Attendant Console: Installation* (553-3001-215).
- **Configuring the system** contains information for configuring the Meridian 1 for use in the UK. Refer to the following documents for additional information on configuring the Meridian 1 system:
  - *X11 Features and Services* (553-3001-306)
  - *X11 Networking Features and Services* (553-2901-301)
  - *ISDN PRI: Installation* (553-2901-201)
  - *ISDN PRI: Maintenance* (553-2901-501)
- **Limited Access to Overlays** contains information on the four levels of access using the LAPW feature.

General Information for the UK

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This chapter includes information about the software features and hardware used with Meridian 1 systems in the UK. It also explains how to use Meridian 1 documents in the UK. This chapter contains a glossary of terms. This glossary shows North American terms and the equivalent terms in the UK.

UK-applicable software features

This guide addresses the latest release of Meridian 1 software, Release 25.40.

Table • lists the features available in the UK. The following information is provided for each feature in Table •:

- **UK-applicable:** This column indicates which features are approved for use in the UK.

  Note: Even if a feature is listed in Table • as approved for use in the UK, always verify the status with British Telecom (BT). The approval status of a feature is subject to change.

- **UK market released**: This column indicates which features are approved for market release in the UK. Do not use features that are not market released without the permission of BT and Nortel Networks product management.
- **Package number**: This column indicates the package number for the feature.

Table 1
Features and packages applicable to the UK (Part 1 of 35)

Feature	UK-applicable	UK market released	Package number
— A —			
AC15 Timed Reminder Recall	Yes	No	236
AC15 Transfer from Norstar	Yes	No	236
AC15 Transfer from Meridian 1	Yes	Yes	236
Access Restrictions	Yes	Yes	0
ACCL Enhancements	Yes	Yes	25
Activity Codes for Not Ready State	Yes	Yes	155
Advice of Charge for AXE-10 Australia and Japan D70	No	Yes	101
Advice of Charge for EURO ISDN	Yes	Yes	261
Agent Observe Login (Advanced)	No		41
Alarm Management	No	Yes	243
Alternative Conference PAD Levels	No	–	131
Alternative loss plan	No	–	131
Alternative routing for DID/DOD	No	–	160
AMIS-A	Yes	Yes	–
Analog Semi-permanent Connections	No		0
APNSS	Yes	Yes	–
Ascom: AOC During Call			
Asia Pacific ISDN PRI Central Office Connectivity Phase III	No		154
Attendant Administration	Yes	Yes	54
Attendant Alternative Answering	Yes	Yes	174

Table 1
Features and packages applicable to the UK (Part 2 of 35)

Feature	UK-applicable	UK market released	Package number
Attendant and Network Remote Call Forward	Yes	No	253
Attendant Barge-in	No	Yes	0
Attendant Blocking of DN	Yes	No	181
Attendant Busy Verify	Yes	Yes	0
Attendant Call Selection	Yes	Yes	0
Attendant Calls Waiting Indication	Yes	Yes	0
Attendant Clearing during Night Service	Yes	No	141
Attendant Consoles	Yes	Yes	0
Attendant Delay on Hold	Yes	Yes	131
Attendant Display of Speed Dial or Autodial	Yes	Yes	131
Attendant FNA Expansion	Yes	Yes	134
Attendant Forward No Answer	Yes	Yes	134
Attendant Idle Extension Notification	Yes	Yes	181
Attendant Incoming Call Indicators	Yes	Yes	0
Attendant Inter-positional Transfer	Yes	Yes	0
Attendant Lockout	Yes	Yes	0
Attendant Overflow Position	Yes	Yes	56
Attendant Position Busy	Yes	Yes	0
Attendant Recall	Yes	Yes	0
Attendant Recall with Splitting	Yes	Yes	131

Table 1
Features and packages applicable to the UK (Part 3 of 35)

Feature	UK-applicable	UK market released	Package number
Attendant Secrecy	Yes	Yes	0
Attendant Splitting	Yes	Yes	0
Attendant Supervisory Console	No	Yes	93
Attendant Though Dialling Networkwide	Yes	Yes	145, 234
Attendant Trunk Group Busy Indication	Yes	Yes	0
Audible Reminder of Held Call	Yes	Yes	0
Australia ETSI	No		145
Authorization Code Security Enhancement	Yes	No	—
Autodial	Yes	Yes	1
Autodial Tandem Transfer	Yes	Yes	258
Automatic Answerback	Yes	Yes	47
Automatic Call Distribution	Yes	Yes	45
Note: The ACD feature has the ability to define an emergency key on agent telephones. When this key is pressed, a supervisor is conferenced in and the call can be recorded with external recording equipment. Please note that unless site specific approval is granted, recorded warning tone must be provided to each party in the call. This tone is not available on the Meridian 1 system—it must be supplied by suitable recording equipment			
ACD Alternate Call Answer	Yes	Yes	40
ACD Answer Time in Night Service	Yes	Yes	131
ACD Call Hold	Yes	Yes	40
ACD Call Priority	Yes	Yes	40
ACD Call Waiting Thresholds	Yes	Yes	40
ACD Display Enhancements	Yes	Yes	40

Table 1
Features and packages applicable to the UK (Part 4 of 35)

Feature	UK-applicable	UK market released	Package number
ACD Display Queue Enhancements	Yes	Yes	40
ACD Enhancements	Yes	Yes	40
ACD in Night Service	Yes	Yes	40
ACD Least Call Queuing	Yes	Yes	41
ACD Report Control	Yes	Yes	42, 50
ACD Routing Enhanced	Yes	Yes	215
Automatic Gain Control Inhibit and Handset Volume Reset	No	Yes	0
Automatic Guard Detection	No	Yes	131
Automatic Hold	Yes	Yes	131
Automatic Line Selection	Yes	Yes	72
Automatic Redial	No	Yes	304
Automatic Wake Up FFC Delimiter	No	Yes	139
— B —			
Bearer Capability in Call Detail Recording	Yes	Yes	4
Boss/Secretary Filtering Enhancement	Yes	Yes	0
Bridging	Yes	Yes	0
Busy Lamp Field Array	Yes	Yes	0
Busy Verify on Calling Party Control Calls	Yes	Yes	126
Busy Tone Detection for Japan	No	Yes	29, 203, 97
— C —			

Table 1
Features and packages applicable to the UK (Part 5 of 35)

Feature	UK-applicable	UK market released	Package number
Call Capacity Report	Yes	Yes	0
Call Capacity Report Enhancement	Yes	Yes	0
Call Connection Restriction	Yes	Yes	146,147,161
Call Detail Recording	Yes	Yes	4
Call Detail Recording 100 Hour Call	Yes	Yes	4, 234
Call Detail Recording Enhancement	Yes	Yes	259
Call Detail Recording Global Format	Yes	Yes	259
Call Detail Recording on Redirected Incoming Calls	Yes	Yes	4
Call Detail Record Time to Answer	Yes	Yes	234
Call Detail Recording with Optional Digit Suppression	Yes	Yes	4
Call Forward All Calls	Yes	Yes	1
Call Forward, Break-In and Hunt Internal/External Network Wide	Yes	Yes	0
Call Forward Busy	Yes	Yes	0
Call Forward and Busy Status	Yes	Yes	131
Call Forward Destination Deactivation	No	Yes	139
Call Forward External Deny	Yes	Yes	0
Call Forward and Hunt by Call Type	Yes	Yes	0
Call Forward/Hunt Override through FFC	Yes	No	139
Call Forward - Internal	Yes	Yes	0

Table 1
Features and packages applicable to the UK (Part 6 of 35)

Feature	UK-applicable	UK market released	Package number
Call Forward No Answer/ Flexible Call Forward No Answer	Yes	Yes	0
Call Forward No Answer, Second Level	Yes	Yes	0
Call Forward Reminder Tone	Yes	Yes	
Call Forward Save on Sysload	Yes	Yes	131
Call Forward to Trunk Restriction	Yes	Yes	131
Call Hold, Deluxe	Yes	Yes	71
Call Hold, Permanent	Yes	Yes	18
Call Page Network Wide	Yes	Yes	307
Call Park	Yes	Yes	33
Call Park Network Wide	Yes	Yes	306
Call Park on Unsupervised Trunks	No	Yes	22
Call Party Name Display	Yes	Yes	95
Call Pickup	Yes	Yes	0
Call Pickup, Directed	Yes	Yes	115
Call Pickup Network Wide	Yes	Yes	145
Call Redirection by Day	Yes	Yes	0
Call Redirection by Time of Day	Yes	Yes	0
Call Trace Enhancements	Yes	Yes	242
Call Transfer	Yes	Yes	0
Call Waiting/Internal Call Waiting	Yes	Yes	0

Table 1
Features and packages applicable to the UK (Part 7 of 35)

Feature	UK-applicable	UK market released	Package number
Note: UK regulatory requirements do not permit Call Waiting for an incoming DDI call terminating on a busy extension. The Call Waiting feature is denied from DDI trunks for all Meridian 1 systems supplied in the UK.			
Call Waiting Notification	Yes	Yes	225
Call Waiting Redirection	Yes	Yes	0
Called Party Control on Internal Calls	No	Yes	310
Called Party Disconnect Control	No	No	0
Calling Number Display Restriction	No		128
Calling Party Name Display Denied (Network Wide)	Yes	Yes	131
Calling Party Privacy	Yes	Yes	301
Calling Party Privacy Enhancement	Yes	Yes	301
Camp-on on Ringback or Dialing	Yes	Yes	197
Camp-on to Multiple-Appearance DN and Group Hunt Queuing Limitation:			
• Camp-on to Multiple Appearance	Yes	Yes	131
• Group Hunt Queuing Limitation	Yes	No	131, 120
Capacity Expansion	Yes	Yes	—
Card LED Status	No	Yes	131
CAS/AOP on Option 11C	Yes	Yes	26, 27, 56
Centralized Attendant Service	No	Yes	26
Centralized Multiple Line Emulation	Yes	Yes	131
Centrex Switchhook Flash	No	Yes	157

Table 1
Features and packages applicable to the UK (Part 8 of 35)

Feature	UK-applicable	UK market released	Package number
Charge Account and Calling Party Number	Yes	Yes	23
Charge Account, Forced	Yes	Yes	52
Charge Display at End of Call	No	Yes	131, 101
China No. 1 Signalling	No	Yes	131
China No. 1 Signalling Enhancements	No	Yes	131
China No. 1 Signalling Trunk Enhancements	No	Yes	131
China Phase 2 - Supervised Analogue Lines	No	Yes	—
China Phase 2 - Toll Call Loss Plan	No	Yes	292
China Phase 2 - Busy Tone Detection	No	Yes	294
China Phase 2 - Attendant Monitor	No	Yes	285
China Phase 2 - Flexible Feature Codes • Busy Number Redial • Customer Call Forward • Outgoing Call Barring	No	Yes	139, 1, 49
CIS ANI Digits Manipulation and Gateways Enhancements	No		221
CIS ANI Reception	No		131
CIS-MF Shuttle	No		326
CIS Toll Dial Tone Detection	No		131
Collect Call Blocking	No	Yes	290

Table 1
Features and packages applicable to the UK (Part 9 of 35)

Feature	UK-applicable	UK market released	Package number
Commonwealth of Independent States (CIS) - DTI	No	Yes	221
Commonwealth of Independent States (CIS) - Three-wire Analogue (IPE) Trunks	No	Yes	221
Conference	Yes	Yes	0
Note: The approval of the Conference feature is limited such that no more than 6 parties may be involved in a conference at any one time. Although there is currently no limit imposed by software, conferences of more than 6 parties are not supported and not approved.			
Conference Warning Tone Enhancement	Yes	Yes	0
Console Operations	Yes	Yes	169
Console Presentation Group Level Services	Yes	Yes	172
Controlled Class Of Service	Yes	Yes	81
Controlled Class of Service, Enhanced	Yes	Yes	173
CTI Enhancements	Yes	Yes	311
CT2 Mobility	Yes	Yes	240
Customer Controlled Routing	Yes	No	215
— D —			
DASS2/DPNSS1 INIT Call Cut Off	Yes	Yes	122, 123/124
DASS2/DPNSS1 - Integrated Digital Access	Yes	Yes	122
Dataport Hunting	Yes	No	0
Data Buffering and Access	Yes	Yes	351

Table 1
Features and packages applicable to the UK (Part 10 of 35)

Feature	UK-applicable	UK market released	Package number
D-Channel Error Reporting and Monitoring			145
D-Channel Expansion	Yes	Yes	—
DCHI expansion for DASS2/DPNSS1	Yes	Yes	231
Departmental Listed Directory Number	Yes	Yes	76
Dial Access to Group Calls	Yes	Yes	48,139
Dial Intercom	Yes	Yes	21
Dial Pulse/Dual Tone Multifrequency Conversion	Yes	Yes	0
Dial Tone Detection	Yes	Yes	138
Dialled Number Identification Services Enhancements	Yes	Yes	98
Dialled Number Identification Services Length Flexibility	Yes	No	98
Digit Display	Yes	Yes	19
Digital Trunk Interface and Primary Rate Interface Timeslot Reuse	Yes	Yes	—
Digital Trunk Interface Enhancements	Yes	Yes	—
Digitone Receiver Enhancements			
• Digitone Receiver Timeout Enhancement	Yes	Yes	
• Quad Density Digitone Receiver Card	No	—	
Direct Inward Dialling Call Forward No Answer Timer	Yes	No	

Table 1
Features and packages applicable to the UK (Part 11 of 35)

Feature	UK-applicable	UK market released	Package number
Direct Inward Dialling-to-Network Calling	Yes	Yes	
Direct Inward Dialling-to-TIE Connection	Yes	Yes	
Direct Inward System Access	Yes	Yes	
Direct Inward System Access on Unsupervised Trunks	No	Yes	
Direct Private Network Access	Yes	Yes	
Directory Number	Yes	Yes	0
Directory Number Delayed Ringing	Yes	Yes	
Directory Number Expansion	Yes	Yes	
Display Calling Party Denied	Yes	Yes	
Display Enhancements (Hospitality)	Yes	Yes	
Display of Access Prefix on CLID	Yes	Yes	145
Distinctive/New Distinctive Ringing	Yes	Yes	
Distinctive Ringing by DN	Yes	Yes	0
Diskette Overflow Warning	Yes	No	
Do Not Disturb	Yes	Yes	
DNIS Name Display	Yes	Yes	
DPNSS Monitoring	Yes	Yes	123, 124
DPNSS1 Attendant Call Offer	Yes	Yes	231
DPNSS1 Attendant Timed Reminder Recall and Attendant Third Party Service	Yes	Yes	231

Table 1
Features and packages applicable to the UK (Part 12 of 35)

Feature	UK-applicable	UK market released	Package number
DPNSS1 Call back When Free and Next Used	Yes	Yes	131
DPNSS1 D-Channel Handler Interface Expansion	Yes	Yes	231
DPNSS1 Diversion	Yes	Yes	231
DPNSS1 Executive Intrusion	Yes	Yes	288
DPNSS1 Extension 3-Party Service	Yes	Yes	231
DPNSS1 Loop Avoidance	Yes	Yes	231
DPNSS1 Message Waiting Indication	Yes	Yes	325
DPNSS1 Night Service	Yes	Yes	123,154
DPNSS1 Redirection	Yes	Yes	231
DPNSS1 Route Optimization	Yes	Yes	231
DPNSS1 Step Back on Congestion	Yes	Yes	231
DPNSS/DASS2 to ISDN PRA (Q.931) Gateway	Yes	Yes	—
DPNSS/DASS2 Uniform Dialling Plan Interworking	Yes	Yes	131
DPNSS1 Route Optimization/MCDN Trunk Anti-Tromboning Interworking	Yes	Yes	122,123, 154
Dual language prompts	Yes	Yes	—
Dual Signaling on Analog Trunks	No		0
– E –			
E164/ESN Numbering Plan Expansion	Yes	Yes	57, 58, 160

Table 1
Features and packages applicable to the UK (Part 13 of 35)

Feature	UK-applicable	UK market released	Package number
Electronic Lock Network Wide/Electronic Lock on Private Lines	Yes	Yes	139
Electronic Switched Network	Yes	Yes	—
End of Dialling on Direct Outward Dialling	No	Yes	131
End of Selection	No	Yes	131
End of Selection Busy	No	Yes	131
End-to-End Signaling	Yes	Yes	10
End-to-End Signaling, Improved	Yes	Yes	10
End-to-End Signaling Display Enhancement	No		10
EuroISDN 7kHz/Videotelephony Teleservices	No		145
EuroISDN	No	Yes	261
EuroISDN Continuation	Yes	Yes	261
EuroISDN Continuation Phase III	Yes	Yes	261
EuroISDN ETS 300 403 Compliance Update	Yes	Yes	261
EuroISDN Malicious Call Identification	Yes	Yes	131
EuroISDN Trunk – Network Side	No	No	309
Enhanced ACD Routing	Yes	Yes	214
Enhanced input/output Buffering	Yes	No	0
Enhanced Maintenance (Patching)	Yes	Yes	131
Enhanced Night Service	Yes	Yes	133

Table 1
Features and packages applicable to the UK (Part 14 of 35)

Feature	UK-applicable	UK market released	Package number
Enhanced package printout	Yes	No	0
Equal Access Compliance	No	No	0
European XDID/XDOD	No	Yes	—
European XFCOT	No	Yes	—
Expired Password Recovery	Yes	Yes	—
— F —			
Fast Tone Digit Switch	No	Yes	87
Faster I/O	Yes	Yes	164
FCC Compliance	No	Yes	223
Feature Group D (Inbound to Meridian 1)	No	Yes	158
FFC Boss Secretary Filtering	Yes	Yes	198
First-Second Degree Busy Indication	Yes	Yes	131
First-Second Degree Busy Indication, ISDN	Yes	Yes	131
Flexible Attendant Call Waiting Thresholds	Yes	Yes	131
Flexible Busy Tone Timer	Yes	Yes	131
Flexible Dial Tone Detection	Yes	Yes	138
Flexible Direct Inward Dialing	Yes	Yes	362
Flexible Feature Codes	Yes	Yes	—
Flexible Key Assignment	Yes	Yes	131
Flexible Numbering Plan	Yes	Yes	160

Table 1
Features and packages applicable to the UK (Part 15 of 35)

Feature	UK-applicable	UK market released	Package number
Flexible Numbering Plan Enhancement	Yes	Yes	160
Flexible Orbiting Prevention Timer	Yes	Yes	0
Flexible Tone and Digit Switch Control	No	Yes	125
Flexible Voice/Data Terminal Number	No	Yes	88
Forced Camp-on/Priority Override	Yes	Yes	186
Forward No Answer Call Waiting for DID	No	Yes	197
— G —			
GEC loss plan	No	No	—
Global Incremental Software Management Enhancement	No		0
Group Call	Yes	Yes	48
Group Hunt Queuing	Yes	Yes	197, 120
Group Hunting	Yes	Yes	120
— H —			
Handsfree Download	No	No	—
Handsfree Voice Call	No	Yes	0
Held Call Clearing	Yes	Yes	131
History File	Yes	Yes	55
Hold in Queue for IVR	Yes	Yes	218
Hong Kong DTI Interface	No	Yes	75
Hospital Management	Yes	No	—

Table 1
Features and packages applicable to the UK (Part 16 of 35)

Feature	UK-applicable	UK market released	Package number
Hospitality Enhancements: Display Enhancements	Yes	Yes	208
Hospitality Enhancements: Maid I.D.	Yes	Yes	210
Hospitality Enhancements: V.I.P. Auto Wakeup	Yes	Yes	212
Hot Line	Yes	Yes	70
Hunting	Yes	Yes	0
Hunting By Call Type	Yes	Yes	131
HVS	Yes	No	179
— I —			
ICP Dial From Directory	No	Yes	143
In Band ANI	No	Yes	12
Incoming Call Indicator Enhancement	Yes	Yes	131
Incoming DID Digit Conversion	Yes	Yes	113
Incoming Digit Conversion Enhancement	Yes	Yes	161
Incoming Trunk Programmable Calling Line Identification	Yes	Yes	145
Incremental Software Management	Yes	Yes	0
Incremental Software Management Enhancements	Yes	Yes	0
ICP Flexible DN Length	Yes	Yes	143
ICP Meridian Mail Interactions	Yes	Yes	143
ICP Network Screen Activation	Yes	Yes	143

Table 1
Features and packages applicable to the UK (Part 17 of 35)

Feature	UK-applicable	UK market released	Package number
Information Notification Service for Japan	No		349
INIT ACD Queue Call Restore	Yes	Yes	40
Instant ISM	Yes	Yes	0
Integrated Mailbox Administration	Yes	Yes	246
Integrated Messaging System Link	Yes	Yes	35
Integrated Services Digital Network (ISDN)	Yes	Yes	145
ISDN Application Protocol	Yes	Yes	153
ISDN Basic Rate Interface (BRI)	No	Yes	216, 235/233
ISDN BRI Connected Line Presentation/Restriction	Yes	Yes	235,216,203
ISDN BRI Supplementary Services	Yes	No	—
ISDN BRI Trunk Access	No	Yes	233
ISDN BRI Trunk Access for Japan	No	Yes	233
ISDN BRI Connectivity to Numeris Terminals	No	Yes	233
ISDN Calling Line Enhancements	No	Yes	145
ISDN Primary Rate Interface	Yes	Yes	145
ISDN PRI CO Connectivity to Japan D70	No	Yes	146
ISDN PRI Meridian 1 to Asia Pacific Connectivity	No	Yes	202
ISDN PRI Meridian 1 to AXE-10 Australia Connectivity	No	Yes	202

Table 1
Features and packages applicable to the UK (Part 18 of 35)

Feature	UK-applicable	UK market released	Package number
ISDN PRI Meridian 1 to AXE-10 Sweden Connectivity	No	Yes	202
ISDN PRI Meridian 1 to SYS-12 Connectivity	No	Yes	202
ISDN PRI Meridian 1 to New Zealand NEAX-61 Connectivity	No	Yes	202
ISDN PRI Meridian 1 to Numeris Connectivity	No	Yes	202
ISDN PRI Meridian 1 to SwissNet 2 Connectivity	No	Yes	202
ISDN PRI Meridian 1 to 1TR6 Connectivity	No	Yes	202
ISDN PRI DPNSS/DASS Interworking	Yes	No	—
ISDN QSIG/ETSI GF Enhancement	Yes	Yes	145
ISDN QSIG-BC and QSIG-GF Compliance Update	Yes	Yes	145
ISDN QSIG Basic Call	No	Yes	263
ISDN QSIG Generic Functional Transport	Yes	Yes	305
ISDN QSIG Call Completion	Yes	Yes	316
ISDN QSIG Channel ID Coding	Yes	Yes	145
ISDN QSIG Name Display	Yes	Yes	131
ISDN Semi Permanent Connections for Australia	No	Yes	145
Integrated Voice and Data	Yes	Yes	0
Intercept Computer Interface	No	Yes	143

Table 1
Features and packages applicable to the UK (Part 19 of 35)

Feature	UK-applicable	UK market released	Package number
Intercept Computer Enhancements	No	Yes	143
Intercept Treatment	Yes	Yes	11
Intercept Treatment Enhancements	No	Yes	131
Interchangeable NPA	No		
International 1.5/2 Mb/s Gateway	No	Yes	167
International Meridian 1	Yes	Yes	—
I/O Access and System Limits	No	No	0
IPE Completion	No	Yes	203
IPE Software Support Enhancements	No	Yes	203
ISA/Call by Call Service Selection Enhancements	No	Yes	202
Italian Phase Features for DTI2	No	Yes	129
Italian Central Office Special Service	No	Yes	129
— J, L —			
Japan D70 PRI nB+D	No	Yes	255
Japan TTC Common Channel Signalling	No	Yes	335
Last Number Redial	Yes	Yes	90
Limited Access to Overlays	Yes	Yes	164
Line Load Control	No	Yes	105
Line Lockout	Yes	Yes	0
Lockout, DID Second Degree Busy and MFE Signalling Treatments	Yes	Yes	131

Table 1
Features and packages applicable to the UK (Part 20 of 35)

Feature	UK-applicable	UK market released	Package number
LOGIVOX Telephone	No	No	131
Loopback on CO lines	No	Yes	197
Loop Start Answer Supervision XUT	No	No	131
Loop Start Supervisory Trunks	No	No	0
Loop Start Supervisory Trunks (Incoming Calls)	No	No	131
— M —			
Maid I.D. (Hospitality Enhancements)	Yes	Yes	210
Make Set Busy	Yes	Yes	17
Make Set Busy/Voice Call Override	Yes	Yes	—
Make Set Busy Improvement	Yes	Yes	17
Malicious Call Trace	Yes	Yes	107
Malicious Call Trace DN/TN Print	Yes	Yes	107
Malicious Call Trace Enhanced	Yes	Yes	107
Malicious Call Trace Idle	No	Yes	107
Malicious Call Trace on Direct Inward Dialling	No	No	131
Manual Line Service	Yes	Yes	0
Manual Service Recall to Attendant	No	No	131
Manual Signalling (Buzz)	Yes	Yes	0
Manual Trunk Service	Yes	Yes	0
Manufacture Delivered Customer Solutions	Yes	Yes	—

Table 1
Features and packages applicable to the UK (Part 21 of 35)

Feature	UK-applicable	UK market released	Package number
Note: When incoming Manual Trunk Service is configured so that a number of trunks auto-terminate on the same Directory Number, one of the following constraints must be programmed: either Hunting or Call Waiting must be enabled, or the number of Multiple Call, Multiple Appearances of a Directory Number must be equal to or greater than the number of Manual Trunks terminating on it.			
MCDN Alternate Routing	Yes	Yes	14
MCDN End to End Transparency	No		240
Meridian 911	No	Yes	224
Meridian 911 Enhancements – Call Abandon	No	Yes	224
Meridian 911 Enhancements – MADN Display Coordination	No	Yes	224
Meridian 1 Fault Management	Yes	Yes	243
Meridian 1 Initialization Prevention and Recovery	Yes	No	0
Meridian 1 Initialization Code C Enhancement	Yes	No	0
Meridian 1 Multi User Login	Yes	Yes	242
Meridian 1 IPE Loss Plan for China	No	Yes	—
Meridian 1 Packet Handler	No	Yes	248
Meridian 1 OA&M Feature Improvement	Yes	Yes	—
Meridian 1 Overlay Restructuring	Yes	Yes	—
Meridian 1 Overlay 15 Restructuring	Yes	Yes	—
Meridian Communications Adapter	Yes	Yes	170
Meridian Companion Enhanced Capacity	No		240

Table 1
Features and packages applicable to the UK (Part 22 of 35)

Feature	UK-applicable	UK market released	Package number
Meridian Hospitality Voice Services	Yes	No	—
Meridian Link Enhancements			209
Meridian Mail Trunk Access Restriction	Yes	Yes	46
Meridian Manager	Yes	No	—
Message Centre	Yes	Yes	—
Message Intercept	Yes	Yes	163
Message Registration	Yes	Yes	101
Message Waiting Indicator by Directory Number	Yes	Yes	46
Message Waiting Lamp Maintenance	Yes	Yes	46
Message Waiting Unconditional	Yes	Yes	46
Modular Telephone Relocation	No	No	0
MQA Enhanced Login	No		0
Multifrequency Signalling for Socotel	No	Yes	135
Multifrequency Signalling for Socotel Direct Outward Dialling	No	Yes	—
Multifrequency Compelled Signalling (MFC) Interworking with AML Based Applications	Yes	Yes	214
Multilingual prompts	Yes	Yes	—
Multiple-Party Operation	Yes	Yes	141
Multi-Party Operation Enhancements	Yes	Yes	131

Table 1
Features and packages applicable to the UK (Part 23 of 35)

Feature	UK-applicable	UK market released	Package number
Multiple Appearance DN Redirection Prime	Yes	Yes	0
Multiple-Console Operation	Yes	Yes	0
Multiple-Customer Operation	Yes	Yes	2
Multiple-Tenant Service	Yes	Yes	86
Multi-Purpose Serial Data Link (MSDL)	Yes	No	222
Music	Yes	Yes	44
Music, Enhanced	Yes	Yes	119
MSDL Idle Code Selection	Yes	Yes	145
MSDL Port Overload Counter	Yes	Yes	145
MSDL Status Enquiry Message Throttle	Yes	Yes	145
MWI Interworking with DMS	No	Yes	219
M2312 Digit Display	No	Yes	88
— N —			
N Digit DNIS	Yes	Yes	98
NACD Source Table Viewer	No		207
NARS/BARS Enhancement — Local Termination	Yes	Yes	57, 58
Network and Executive Distinctive Ringing:			—
• Network Distinctive Ringing	Yes	Yes	
• Executive Distinctive Ringing	Yes	Yes	185

Table 1
Features and packages applicable to the UK (Part 24 of 35)

Feature	UK-applicable	UK market released	Package number
Network Application Protocol Link Enhancement, ISDN	Yes	Yes	153
Network Attendant Service	Yes	Yes	159
Network Call ID for Network ACD	No	Yes	153, 207
Network Call Trace and Call Diagnostics	Yes	Yes	148
Network Drop Back Busy and Off-Hook Queuing	Yes	Yes	192
Network Individual Do Not Disturb	Yes	Yes	9, 159, 127
Network Intercom	Yes	Yes	70
Networkwide Listed Directory Numbers	Yes	Yes	131
Network Name Display (Meridian 1 to DMS 100/250)	No	Yes	145
Network Meridian Mail	Yes	Yes	175
Network Message Services			175
• Message Centre	Yes	No	
• Meridian Mail	Yes	Yes	
Network Ring Again	Yes	Yes	—
Network Tenant Services	Yes	Yes	—
Network Time Synchronization	Yes	Yes	161
New Flexible Code Restriction	Yes	Yes	49

Note: The New Flexible Code Restriction feature allows a user to create a list of “allowed” and “disallowed” numbers in LD 49. During an outgoing call, digits are outpulsed as they are dialed. If a dialled number is identified as “disallowed”, the call is cleared and call barring treatment is applied to the originator. UK approval regulations prevent the system from applying call barring to a call when more than 4 digits have been sent. Entries in NFCR tables, therefore, can not be greater than 5 digits long where they apply to PSTN, ChASS, or DASS2 trunk routes.

Table 1
Features and packages applicable to the UK (Part 25 of 35)

Feature	UK-applicable	UK market released	Package number
Emergency calls must not be barred due to digit restriction. All systems, therefore, have '999' pre-programmed into the “allowed” list. This entry must not be removed under any circumstance. When service changes are made, the configuration should be printed and checked to ensure that the '999' entry has not been accidentally removed by 'forcing' a conflicting number			
NGen R2/Meridian Communications Exchange (MCE) Connectivity	Yes	Yes	364
NI-2/QSIG Compliance Update	No		145
NI-2 TR-1268 PRI	No	Yes	291
Night Class Of Service	Yes	No	—
Night Key for DID Digit Manipulation	Yes	Yes	—
Night Service	Yes	Yes	0
Night Service Enhancements	Yes	Yes	131
No Hold Conference	Yes	Yes	—
NPI and TON in Call Detail Recording	Yes	Yes	4,5,18, 234
NSIG on VNS	Yes	Yes	183,148,58, 32
— O —			
Off Hook Alarm Security	Yes	No	—
Off-Premise Extension	No	No	0
Office Data Administration System	Yes	Yes	20
Off-Hook Alarm Security	Yes	No	0
Off-Hook Alarm Security Half Disconnect Enhancement	No		0
On-Hook Dialling	Yes	Yes	0
On Hold on Loudspeaker	No	Yes	196

Table 1
Features and packages applicable to the UK (Part 26 of 35)

Feature	UK-applicable	UK market released	Package number
Option 51C	Yes	Yes	—
Option 61C	Yes	Yes	—
Option 81C	Yes	Yes	—
Option 81 Multi-language Messages	No	Yes	279
Optional Outpulsing Delay	No	Yes	79
Overlay Cache Memory	Yes	No	0
Overlap Signalling	Yes	Yes	184
Outgoing Hold Timer Increase	No		126
Override	Yes	Yes	0
— P —			
Paging	Yes	Yes	0
Partial Dial Timing	No	Yes	131
Periodic Camp-on Tone	Yes	Yes	131
Periodic Clearing	No	Yes	131
Periodic Clearing Enhancement	No	Yes	131
Periodic Clearing on RAN, Meridian Mail, ACD, and Music	No	Yes	131
Periodic Pulse Metering	Yes	Yes	101
Phantom TN Operation	Yes	Yes	254
PMSI Standardisation	Yes	Yes	103
Position Busy with Call on Hold (Attendant)	Yes	Yes	131
Predictive dialling	Yes	Yes	0

Table 1
Features and packages applicable to the UK (Part 27 of 35)

Feature	UK-applicable	UK market released	Package number
Pretranslation	Yes	Yes	92
Preventing Reciprocal Call Forward	No	Yes	131
Privacy	Yes	Yes	0
Privacy Override	No	No	0
Privacy Release	Yes	Yes	0
Private Line Service	Yes	Yes	0
Process Notification for Networked Calls	No		128
Property Management System Interface	Yes	Yes	103
Public Switched Data Service	No	No	0
Pulsed E&M DTI2 Signalling	No	Yes	232
— Q —			
QSIG	Yes	Yes	263
QSIG Alternate Routing	Yes	Yes	263
QSIG Basic Call	Yes	Yes	263, 202
QSIG Call Diversion	Yes	Yes	263,
QSIG Call Diversion Notification Enhancements	Yes	Yes	263
QSIG Call Transfer Notification	No		263
QSIG/EuroISDN Call Completion Enhancement	Yes	Yes	263
QSIG GF Transport	Yes	Yes	305
QSIG Path Replacement	Yes	Yes	316, 305, 263

Table 1
Features and packages applicable to the UK (Part 28 of 35)

Feature	UK-applicable	UK market released	Package number
QSIG Supplementary Services – Name Display Enhancement	Yes	Yes	263
Quad Density Voice Only Digital Line Card Enhancement	No	No	0
— R —			
R2MFC Signalling	No	No	128
R2MFC Calling Number Identification/Call Detail Recording Enhancements	No	Yes	128,145,154, 261/263
R2MFC DID/DTMF DOD	Yes	Yes	128
R2MFC to DPNSS Gateway	No	No	—
R2MFC 1.5 Mbps DTI	No	Yes	129
R2MFC Signalling Selective Route To Attendant	No	No	128
Radio Paging	Yes	Yes	187
Radio Paging Improvement	Yes	Yes	187
Real Time Periodic Pulse Metering	Yes	No	101
Recall after Parking	Yes	Yes	33
Recall to Same Attendant	Yes	Yes	131
Recall to Same Attendant Network Wide	Yes	Yes	—
Recall with Priority during Night Service	Yes	Yes	131
Recall With Priority During Night Service Network Wide	Yes	Yes	131
Recorded Announcement	Yes	Yes	7

Table 1
Features and packages applicable to the UK (Part 29 of 35)

Feature	UK-applicable	UK market released	Package number
Recorded Announcement for Call Diverted to External Trunks	Yes	No	—
Recorded Overflow Announcement	Yes	Yes	36
Recorded Telephone Dictation	No	No	0
Recovery of Misoperation on the Attendant Console	Yes	Yes	131
Reference Clock Switching	No	Yes	131,129,154
Remote Call Forward	Yes	Yes	253
Remote Notification	Yes	Yes	—
Remote Peripheral Equipment (1.5 Mbps)	No	Yes	15
Remote Peripheral Equipment (2.0Mbps)	Yes	Yes	165
Remote Peripheral Equipment (Two-Mbit) Alarm Handling	No	Yes	165
Remote Radio Paging	Yes	Yes	187
Remote Virtual Queuing	Yes	No	192
Restricted Call Transfer	Yes	Yes	—
Restricted DID Class of Service	Yes	Yes	131
Return to Queue After No Answer	No		40
Reverse Dial on Routes and Telephones	No	No	125
Ring Again	Yes	Yes	1
Ring Again on No Answer	Yes	Yes	0 or 148
Ring/Hold Lamp Status	Yes	Yes	131

Table 1
Features and packages applicable to the UK (Part 30 of 35)

Feature	UK-applicable	UK market released	Package number
Ringback Tone Enhancement	No	No	131
Ringing Change Key	Yes	Yes	193
Ringing Instead of Buzzing on Digital Telephones	No		0
Room Status	Yes	Yes	100
— S —			
Scheduled Access Restrictions	Yes	Yes	162
Secrecy Enhancement	Yes	Yes	131
Secretarial Filtering	Yes	Yes	0
Seizure Acknowledgment	No	No	131
Selectable DN Size	Yes	Yes	131
Semi-Automatic Camp-On	Yes	Yes	181
Semi-Compelled MFC and CNI Charges	No	No	128
Series Call	Yes	Yes	191
Serial Port Expansion	Yes	No	0
Short Buzz for digital telephones	Yes	Yes	0
Short Memory Test	Yes	No	0
Single Digit Access to Hotel Services	Yes	Yes	131
Single Terminal Access	Yes	Yes	228
Slow Answer Recall Enhancements	Yes	No	131
Slow Answer Recall for Transferred External Trunks	Yes	No	131

Table 1
Features and packages applicable to the UK (Part 31 of 35)

Feature	UK-applicable	UK market released	Package number
Source Included when Attendant Dials	Yes	No	131
Spanish KD3 DID/DOD Interface	No	Yes	252
Special Dial Tones After Dialed Numbers	Yes	No	160
Special Signalling Protocols	No	No	131
Special Trunk Support	No	No	131
Speed Call Directory Number Access	Yes	Yes	131
Speed Call	Yes	Yes	1
Speed Call/Autodial with Authorization Codes	Yes	Yes	1
Speed Call Delimiter	Yes	Yes	1,34
Speed Call, System	Yes	Yes	34
Speed Call on Private Lines	Yes	Yes	1
Speed-Up Data Dump	Yes	No	0
Meridian Mail Connection	Yes	No	262
Station Activity Record	Yes	Yes	251
Station Category Indication	Yes	Yes	80
Station Loop Preemption	No	No	—
Station Specific Authorisation Codes	Yes	No	229
Station to Station Calling	Yes	Yes	0
Stored Number Redial	Yes	Yes	64
Supervised CO Trunk Simplification	No	Yes	

Table 1
Features and packages applicable to the UK (Part 32 of 35)

Feature	UK-applicable	UK market released	Package number
System Access Enhancements	Yes	Yes	—
System Management Enhancements	Yes	Yes	—
System Capacity Enhancements	Yes	No	0
— T —			
T309 Timer	No	No	145
Taiwan R1 Modified Signaling	No		347
Telephones	Yes	Yes	0
Telset Call Timer Enhancement	Yes	Yes	131
Time and Date	Yes	Yes	8
TMDI on Option 11C	Yes	Yes	0
Tones and Cadences	Yes	Yes	125
Tones, Flexible Incoming	Yes	Yes	0
Tone to Last Party	Yes	Yes	131
Total Redirection Count			145
Traffic Monitoring	No	No	—
Transparent Data Networking	No	No	—
Trunk Barring	Yes	Yes	132
Trunk Direct Inward Dialling Digitone Receiver Acknowledgment	No	No	—
Trunk Failure Monitor	No	No	182
Trunk Failure Monitor Enhancement	No	No	182
Trunk Improvement Program	No	No	—
Trunk Traffic Reporting Enhancement	Yes	Yes	0

Table 1
Features and packages applicable to the UK (Part 33 of 35)

Feature	UK-applicable	UK market released	Package number
Trunk to Trunk Connection	Yes	Yes	0
Trunk Verification from a Station	Yes	Yes	110
TTY Access Control in Multi-Customer Environment	Yes	Yes	131, 164
— U —			
Uninterrupted Line Connections	Yes	Yes	0
UK Analogue Hardware Support	Yes	Yes	190
User Changeable Revert	Yes	Yes	—
User Selectable Call Redirection	Yes	Yes	139
— V —			
Variable Flash Timing and Ground Button Operation	Yes	Yes	131
Variable Guard Timer	Yes	Yes	131
V.I.P. Auto Wakeup (Hospitality Enhancements)	No	Yes	212
Virtual Network Services	Yes	No	183
VNS Rework (Including EuroISDN interworking)	Yes	Yes	183
VNS in the UK with DASS2/DPNSS1 Bearer	Yes	Yes	183
VNS Virtual Directory Number Expansion	Yes	Yes	183
Voice Call	Yes	Yes	0
Voice Forms	Yes	Yes	—

Table 1
Features and packages applicable to the UK (Part 34 of 35)

Feature	UK-applicable	UK market released	Package number
Voice Menu Remote Activation	Yes	Yes	—
— X —			
X08 to X11 Gateway	No	No	161
XTD Global Parameters Download	Yes	Yes	—
– 1 to 2500 –			
1.5/2.0 Mbps Gateway	Yes	Yes	154
2-Mb/s Digital Trunk Interface	Yes	Yes	129

Table 1
Features and packages applicable to the UK (Part 35 of 35)

Feature	UK-applicable	UK market released	Package number
2-Mb/s Digital Trunk Interface Enhancements:			129
- Alarm Handling on DID Channels	Yes	Yes	
- Alarm Handling on Incoming COT/DID Calls	Yes	Yes	
- Call Clearance	Yes	Yes	
- Clock Synchronization	Yes	Yes	
- DID Call Offering	No	-	
- Disable Out-of-Service Alarm State	Yes	Yes	
- Fault Signal	No	-	
- Incoming Seizure	Yes	Yes	
- Outpulsing Delay	Yes	Yes	
- Release Control	No	-	
- Signal Recognition	Yes	Yes	
- Trunk Entering Alarm Status/Trunk Pack Exiting Alarm Status	Yes	Yes	
- 64 Kbit Alarm Indication Signal Handling	Yes	Yes	
2-Mb/s Remote Peripheral Equipment	No	No	165
16-button 2500 (DTMF) Telephone Operation	Yes	Yes	144
16 Concurrent Ringers	No	No	0
500 Telephone Features	Yes	Yes	73
500/2500 Line Disconnect	No	Yes	0
500/2500 Disconnect for Outgoing Calls	No	Yes	0
510 Trunk Route Member Expansion	Yes	Yes	0
2216 ACD Telephone Product Improvements	Yes	Yes	88
2500 Telephone Features	Yes	Yes	18

UK-approved hardware

Table 2 lists the hardware used with Meridian 1 systems in the UK.

Table 2
Hardware used in the UK (Part 1 of 10)

Part code	Equipment
Modules	
NTAK11	Option11C cabinet (Main and Expansion)
NTDK91	Option 11C Mini Main Chassis
NTDK92	Option 11C Mini Chassis Expander
NT6D44	Meridian Mail Module
NT6P01	Meridian Mail EC Module
NT7D00	Top Cap
NT7D09	Pedestal
NT7D18AB	Application Equipment Module
NT8D35	Network Module
NT8D36	Intergroup Module
NT8D37	Intelligent Peripheral Equipment Module DC
NT7D18AB	Application Equipment Module
NT7D19MA	Application Equipment Module
NT7D19NA	Application Equipment Module
NT7D19SA	Application Equipment Module
NT9D11	Core/Network Module (Options 51/5C and 61/61C)
NT1P70	Small Fibre Remote Cabinet
Common and Network equipment	
NT5K35	D - Channel Handler Interface (DASS2 / DPNSS)

Table 2
Hardware used in the UK (Part 2 of 10)

Part code	Equipment
NT5K75	D - Channel Handler Interface (DASS2/DPNSS)
NT6D11	D - Channel Handler Interface (PRA / ISL) (DASS2/DPNSS)
NT8D04	Superloop Network card
NT8D17	Conference/Tone and Digit Switch
NT8D18	Network/Digitone Receiver card
NT8D31	Blank Faceplate
NT8D41	Serial Data Interface Paddle Board (Dual Port)
NT8D72	Primary Rate Interface (PRI)
NTCK43	Dual PRI (DPRI)
QPC215	Segmented Bus Extender
QPC412	Inter-Group Switch
QPC414	Dual Network, Enhanced
QPC43	Peripheral Signalling
QPC441	3-Port Extender
QPC477	Bus Termination Unit
QPC513	Enhanced Serial Data Interface (ESDI)
QPC536	Digital Trunk Interface
QPC841	Quad Serial Data Interface (QSDI)
NT1P61	Fibre Network
NT1P62	Fibre Controller
NT1P63	Electro-Optic Interface
NT6D6003	Core Bus Terminator

Table 2
Hardware used in the UK (Part 3 of 10)

Part code	Equipment
NT6D63	Input/Output Processor
NT6D64	Core Multi-Drive Unit
NT6D65	Core to Network Interface
NT6D66	Call Processor
NT6D73	Multi-Purpose ISDN Signalling Processor
NT6D80	Multi-purpose Serial Datalink
QPC417	Junctor Board
Peripheral Equipment	
NT5K02	Flexible Analogue Line Card
NT5K17	DDI Trunk Card
NT5K18	Exchange Line Trunk Card
NT5K19	AC15/DC5/RAN/PAG TIE Trunk card
NT5K20/48	Tone Detector/DTR
NT7D16	Data Access Line card
NT8D01AC	Controller - 4 ***Note:*** Do not use this card in a CE/PE module.
NT8D01AD	Controller - 2 ***Note:*** Do not use this card in a CE/PE module.
NT8D02	Digital Line Card
NTDK16	48-port Digital Line Card (Option 11C Mini)
NTDK20	Small System Controller Card (Option 11C)
NTDK97	Mini System Controller Card
NT1P62	Fibre Controller

Table 2
Hardware used in the UK (Part 4 of 10)

Part code	Equipment
NT6D70	S-Interface Line Card
NT6D71	U-Interface Line Card
NT6D72	Basic Rate Signalling Concentrator
NTAK01	CPU/Conference
NTAK03	TDS/DTR
NTAK10	2.0 Mbit Digital trunk Interface
NTAK13	Mail power supply
NTAK14	68K processor
NTAK15	Digital voice processor
NTAK16	C25 board
NTAK17	Connector board
NTND15	4Mb Floppy Disk Unit
NTBK54	Main Fibre Interface
NTBK55	Expansion Fibre Interface
NTCK90	CMCC Controller
NTCK91	CMRC Radio Line
NTCK93	CMLC Line
Meridian Mail cards	
NT4G59	Random access memory
NT4G59	SCSI interface
NT4R01	Network voice processor
NT4R03	RS-232 service module

Table 2
Hardware used in the UK (Part 5 of 10)

Part code	Equipment
NT4R08	High availability bus controller
NT4R09	Single-board computer
NT4R71	Memory
NT6D45	Tape drive
NT6D46	155MB hard disk
NT6D47	300MB hard disk
NT6D48	600MB hard disk
NT4R44	Random access memory
Meridian Mail E.C. cards	
NT6P02	68K
NT6P03	Utility
NT6P04	4-port Voice Processor
NT6P05	Tape Unit
NT6P06	300Mb Disk Unit
NT6P07	1.2Gb Disk Unit
NT6P08	8-port Voice Processor
NT6P42	Utility
NT6P43	300Mb Disk Unit with Auxiliary Power
NT6P44	1.2Gb Disk Unit with Auxiliary Power
NT6P97	MMP40 Processor Card
NT4R45	MMP40 Processor Card
Meridian MAX, Link and CCR cards	

Table 2
Hardware used in the UK (Part 6 of 10)

Part code	Equipment
A0600181	MVME 167SA-1 single board computer
A0376528	Transition module w/o modem
NT6D51AA	I/O card transition module
NT6D98AA	8 channel asynchronous I/O board kit
NT7D62AB	172MB disk/tape unit
NT7D77EC	CCR Module International
AO352210	MVME 333-2 Intelligent Comms Controller
Power equipment	
NT6D40	Peripheral Equipment Power Supply DC
NT6D41	Common Equipment Power Supply DC
NT6D42	Ringing Generator DC
NT6D43	Common/Peripheral Equipment Power Supply
NT7D0003	Fan & Sensor Assembly
NT7D67	Power Distribution Unit DC
NTAK04	Option 11C AC Power supply
NT7D10	Power Distribution Unit DC
NT7D64DC	Application Equipment Module Power Supply Assembly
NT8D22	System Monitor
NTAK28	Battery backup junction box
Other power equipment	
NPS51095-01L2	Power Cabinet LA - Master
NPS51095-01L3	Power Cabinet LB - Master

Table 2
Hardware used in the UK (Part 7 of 10)

Part code	Equipment
NPS51095-01L1	Power Cabinet LC - Slave
NPS51095-04L1	Rectifier 28 Ampere
NPS51095-05L1	Rectifier 38 Ampere
NPS51095-06L1	Battery Set 100 Ampere Hour
AO352117	220V Transformer (with mains lead and plug)
AO384263	Liberation Headset (ACD binaural)
AO384264	Liberation Headset (M2250 3-in-1)
AO384366	Liberation Headset (ACD 3-in-1)
IX 319	Polaris Headset (M2250 headband)
IX 320	Polaris Headset (ACD headband)
NT0C21BG-67	Rapport Message Waiting Telset (Almond)
NT0C21BG-93	Rapport Message Waiting Telset (Dolphin Grey)
NT0C21BG-96	Rapport Message Waiting Telset (Taupe)
NT2K05CH-03	M2006 Single Line Digital telephone (Black)
NT2K05CH-35	M2006 Single Line Digital telephone (Chameleon Ash)
NT2K05CH-93	M2006 Single Line Digital telephone (Dolphin Grey)
NT2K08CH-03	M2008 Standard Business telephone (Black)
NT2K08CH-35	M2008 Standard Business telephone (Chameleon Ash)
NT2K08CH-93	M2008 Standard Business telephone (Dolphin Grey)
NT2K08CJ-03	M2008 Display Business telephone (Black)
NT2K08CJ-35	M2008 Display Business telephone (Chameleon Ash)

Table 2
Hardware used in the UK (Part 8 of 10)

Part code	Equipment
NT2K08CJ-93	M2008 Display Business Set (Dolphin Grey)
NT2K10	Power Supply Board
NT2K16CH-03	M2616 Performance Plus Set (Black)
NT2K16CH-35	M2616 Performance Plus Set (Chameleon Ash)
NT2K16CH-93	M2616 Performance Plus Set (Dolphin Grey)
NT2K16CJ-03	M2616 Performance Plus Display Set (Black)
NT2K16CJ-35	M2616 Performance Plus Display Set (Chameleon Ash)
NT2K16CJ-93	M2616 Performance Plus Display Set (Dolphin Grey)
NT2K18CH-03	M2216 ACD Telephone Set with display (Black)
NT2K18CH-35	M2216 ACD Telephone Set with display (Chameleon Ash)
NT2K18CH-93	M2216 ACD Telephone Set with display (Dolphin Grey)
NTDL01BE-35	M3110 Meridian Digital Telephone (Chameleon Ash)
NTDL01BE-70	M3110 Meridian Digital Telephone (Charcoal)
NTDL01BE-93	M3110 Meridian Digital Telephone (Light Grey)
NTDL02BE-35	M3310 Meridian Digital Telephone (Chameleon Ash)
NTDL02BE-70	M3310 Meridian Digital Telephone (Charcoal)
NTDL02BE-93	M3310 Meridian Digital Telephone (Light Grey)
NTDL03BE-35	M3820 Meridian Digital Telephone (Chameleon Ash)
NTDL03BE-70	M3820 Meridian Digital Telephone (Charcoal)
NTDL03BE-93	M3820 Meridian Digital Telephone (Light Grey)

Table 2
Hardware used in the UK (Part 9 of 10)

Part code	Equipment
NTNG35EA-66	M3905 Call Centre Meridian Digital Telephone (Platinum)
NTNG35EA-70	M3905 call Centre Meridian Digital Telephone (Charcoal)
NT2K22XH-03	Meridian Key Expansion Module (Black)
NT2K22XH-35	Meridian Key Expansion Module (Chameleon Ash)
NT2K22XH-93	Meridian Key Expansion Module (Dolphin Grey)
NT2K25YJ-03	Meridian Display Option (Black)
NT2K25YJ-35	Meridian Display Option (Chameleon Ash)
NT2K25YJ-93	Meridian Display Option (Dolphin Grey)
NT2K28	Optional Display
NT2K40WA	External Alerter Interface
NT2K64	Meridian Programmable Data Adapter (MPDA)
NT2K65	Meridian Communications Adapter (MCA)
39UTN00001DLE	Vanguard Message waiting Telset (Black)
39UTN00001DLF	Vanguard Message waiting Telset (Chameleon Ash)
39UTN00001DLG	Vanguard Message waiting Telset (Dolphin Grey)
NT3G42AA-35	Busy Lamp Field/Console Graphics Adapter (Chameleon Ash.)
NT3G42AA-93	Busy Lamp Field/Console Graphics Adapter (Dolphin Grey).
NT6G48AA-35	M2250 Digital Console (Chameleon Ash), with Handset
NT6G48AA-93	M2250 Digital Console (Dolphin Grey), with Handset
NT0P20	Wireless base station

Table 2
Hardware used in the UK (Part 10 of 10)

Part code	Equipment
NT0P31	M7310 base station PSU
NT8B22	M7310 Administration Terminal
NTE006	Remote Power Interface (8-station)
NTE007	Remote Power Interface (16-station)
X9950704	Liberation Headset (ACD earhook)
X9950705	Liberation Headset (ACD earloop)
X9950706	Liberation Headset (ACD headband)
X9950707	Liberation Headset (M2250 earhook)
X9950708	Liberation Headset (M2250 earloop)
X9950709	Liberation Headset (M2250 headband)
Visually handicapped operator console	
NT5K38	Visually handicapped operator console package
NT5K29	Audio Mixer Unit VHOC
NT5K3801	Audio Cable VHOC
NT5439	RS232 VHOC

UK loss plan

Loss plan overview for large systems

Table 3 provides an overview of the loss plan for large systems.

Table 3
Loss plan overview for large systems (Part 1 of 2)

		E/L Long	E/L Sht	Ext	2-w PC	4w PC	4w link	2M E/L	2Mb PC	Ran	Pag	Dig Ext RLR	Rap RLR
	Loss O/P I/P	–3	–1	4	0	4	0	0	0	X	4	–1	–3
EL/DDI long (0-8dB)	–4	X	X	0	–4	0	–4	X	–4	X	0	–5	–7
EL/DDI short (0-6dB)	–2	X	X	2	–2	2	–2	X	–2	X	2	–3	–5
Extension	3	0	2	7	3	7	3	3	3	X	7	2	0
2w PC (DC5)	–3	–6	–4	1	–3	1	þ3	–3	–3	X	1	–4	–6
4w PC (DC5/AC15)	0	–3	–1	4	0	4	0	0	0	X	4	–1	–3
4-w link (DC5/AC15	0	–3	–1	4	0	4	0	0	0	X	4	–1	–3
2Mb E/L (DASS2/CAS/ **ISDN)**	4	X	X	8	–4	8	4	–4	4	X	8	3	1
2Mb TIE/link (CAS/DPNSS / ISDN)	0	–3	–1	4	0	4	0	0	0	X	4	–1	–3
RAN/Music	3	0	2	7	3	7	3	3	3	X	7	2	0
Paging	X	X	X	X	X	X	X	X	X	X	X	X	X
Digital extensions (SLR)	5	2	4	9	5	9	5	5	5	X	9	4	2

Table 3
Loss plan overview for large systems (Part 2 of 2)

Rapport telephone (SLR)	5	2	4	9	5	9	5	5	5	X	9	4	2

Loss plan overview for Option 11C and 11C Mini systems

Table 4 provides an overview of the loss plan for Option 11C and 11C Mini systems.

Table 4
Loss plan overview for Option 11C and 11C Mini (Part 1 of 2)

		E/L Long	E/L Sht	Ext	2-w PC	4w PC	4w link	2M E/L	2Mb PC	Ran	Pag	Dig Ext RLR	Rap RLR
	Loss O/P I/P	–3	–1	4	0	4	0	0	0	X	4	–1	–3
EL/DDI long (0-8dB)	–4	X	X	0	X	0	–4	X	–4	X	0	–5	–7
EL/DDI short (0-6dB)	–2	X	X	2	X	2	–2	X	–2	X	2	–3	–5
Extension	3	0	2	7	3	7	3	3	3	X	7	2	0
2w PC (DC5)	–3	–X	X	1	–3	1	–3	X	–3	X	1	–4	–6
4w PC (DC5/AC15)	0	–3	–1	4	0	4	0	0	0	X	4	–1	–3
4-w link (DC5/AC15	0	-3	–1	4	0	4	0	0	0	X	4	–1	–3
2Mb E/L (DASS2/CAS/ **ISDN)**	4	X	X	8	X	8	4	X	4	X	8	3	1
2Mb TIE/link (CAS/DPNSS/ ISDN)	0	–3	–1	4	0	4	0	0	0	X	4	–1	–3
RAN/Music	3	0	2	7	3	7	3	3	3	X	7	2	0
Paging	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 4
Loss plan overview for Option 11C and 11C Mini (Part 2 of 2)

Digital extensions (SLR)	5	2	4	9	5	9	5	5	5	X	9	4	2
Rapport telephone (SLR)	5	2	4	9	5	9	5	5	5	X	9	4	2

Note 1: Calculate the port-to-port call path loss by finding the intersection of the input port (row) and the output port (column) for that direction of transmission. In some cases, the loss is different for the two directions of transmission.

Note 2: One of the ports listed above is in fact a digital or Rapport telephone. The value obtained by the referencing process described above is a loudness rating rather than a loss.

Note 3: In Table 3, a positive figure indicates a loss, and a negative figure indicates a gain.

Note 4: Connections between exchange lines are permitted if both lines are digital. Otherwise, PSTN-PSTN connections are barred.

Note 5: The PXML lists certain connections as barred which are stated above as being permitted. These connections are permitted under Oftel General Variations NS/V/123/L/100010 and NS/V/1235/P/100020.

Absolute maximum delay plan overview

Table 5 provides an overview of the Absolute Maximum Delay loss plan for large systems.

Table 5
Absolute Maximum Delay loss plan overview for large systems

TO Delay (ms)	E/L	Ext	2-w PC	4-w PC	4-w link	2Mb E/L	2Mb PC	Dig Extn	Rapp
FROM									
EL/DDI	1.30	1.30	1.30	1.30	1.30	1.04	1.04	1.43	1.30
Extension	1.30	1.30	1.30	1.30	1.30	1.04	1.04	1.43	1.30
2w PC	1.30	1.30	1.30	1.30	1.30	1.04	1.04	1.43	1.30
4w PC	1.30	1.30	1.30	1.30	1.30	1.04	1.04	1.43	1.30
4-w link	1.30	1.30	1.30	1.30	1.30	1.04	1.04	1.43	1.30
2Mb E/L (DASS2/CAS/ISDN	1.27	1.27	1.27	1.27	1.27	1.00	1.00	1.39	1.27
2Mb TIE/link (CAS/DPNSS/ISDN	1.27	1.27	1.27	1.27	1.27	1.00	1.00	1.39	1.27
Digital extensions	1.43	1.43	1.43	1.43	1.43	1.16	1.16	1.55	1.43
Rapport	1.30	1.30	1.30	1.30	1.30	1.04	1.04	1.43	1.30

Table 6 provides an overview of the Absolute Maximum Delay loss plan for Option 11C and 11C Mini systems.

Table 6
Absolute Maximum Delay loss plan overview for Option 11C and 11C Mini

TO Delay (ms)	E/L	Ext	2-w PC	4-w PC	4-w link	2Mb E/L	2Mb PC	Dig Extn	Rapp
FROM									
EL/DDI	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
Extension	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
2w PC	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
4w PC	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
4-w link	1.30	1.30	1.30	1.30	1.30	1.04	1.04	1.43	1.30
2Mb E/L (DASS2/CAS/ISDN	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
2Mb TIE/link (CAS/DPNSS/ISDN	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
Digital extensions	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.15	1.00
Rapport	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65

Quantization distortion units

Table 7 on page 61 lists the Quantization Distortion Units. The values are for both directions of transmission. Other includes all ports other than Digital Trunk and Digital TIE (that is, Analogue Trunk, Analogue TIE, Analogue Extension and Digital Extension).

Digital TIE ports (both directions of transmission) and digital trunks (transmit path only) have bit integrity between the trunk interface and switching matrix..

Table 7
Quantization Distortion Units

From	To	ODUs
Digital Trunk	Digital TIE	0.7
Digital TIE	Digital TIE	0
Other	Digital Trunk	1.2
Other	Digital TIE	0.5
Other	Other	1.0

Stability loss

Table 8 provides the worst-case figures for receive to transmit loss (including input and output loss) under impedance mismatch conditions (200 ohms and 1200 ohms) for all permitted connections between 2-wire and 4-wire ports. The sum of stability losses for all closed four-wire transmission loops within a private branch network should not exceed 6dB.

Table 8
Quantization Distortion Units

4-wire port	2 Mb trunk	2 Mb PC/link	4-w PC	4-w link
2-wire port/ITS				
CO long	x	-2.0	+2.0	-2.0
CO short	x	+2.1	+6.1	+2.1
DDI long	x	-2.9	+1.1	-2.9
DDI short	x	+1.1	+4.1	+1.1
2-w PC	+5.2	+1.2	+5.2	+1.2
Ext	+15.0	+11.0	+15.0	+11.0
Digital phone	+11.7	+7.7	+11.7	+7.7
Note: x = connection not permitted				

Trunks and signalling schemes

Digital Trunks

Synchronization

Digital trunk synchronization is provided through 1 or 2 Clock Controller cards (NTRB53).

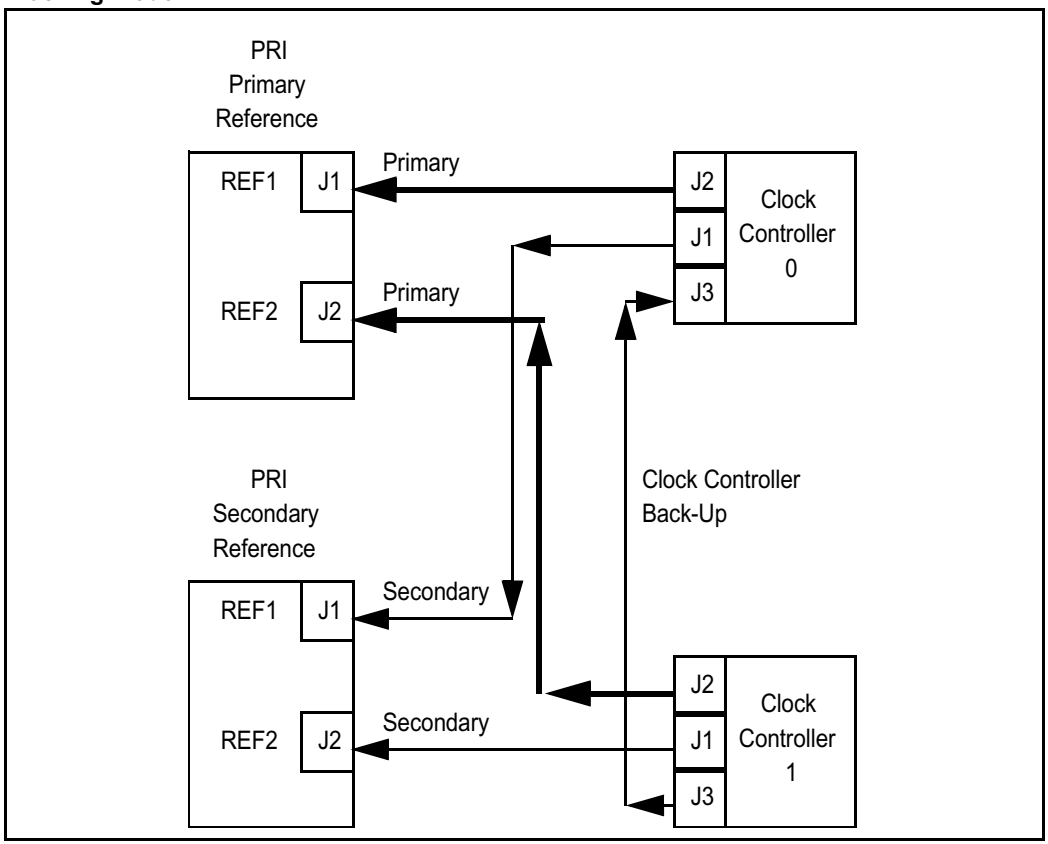
There are two modes of operation: tracking and free run (non-tracking).

Tracking mode

In tracking mode, the Primary Rate Interface (PRI) or Digital Trunk Interface (DTI) loop supplies an external clock reference to a clock controller. Two PRI or DTI loops can operate in tracking mode, with one defined as the primary reference source for clock synchronization, the other defined as a secondary reference source. The secondary reference acts as a back-up to the primary reference.

As shown in Figure 1, a Meridian 1 system with a dual CPU may have two clock controllers (CC0 and CC1). One clock controller acts as a back-up to the other. The clock controllers should be locked to the reference clock.

Figure 1
Tracking mode



Free run (non-tracking mode)

The clock synchronization for a PRI loop may operate in free-run mode if:

- the loop is not defined as the primary or secondary clock reference
- the primary and secondary references are disabled
- the primary and secondary references are in a local alarm state

2 Mbit/s Cable Lengths

The maximum cable length allowed between a Nortel Networks NT8D72 Primary Rate Interface (PRI) pack, or QPC536 Digital Trunk Interface (DTI) pack, and a British Telecom or Mercury Communications Limited Line Terminating Unit (LTU) is 200 metres (655 feet). This distance assumes 75 ohm shielded cable.

Table 9 lists the standard cables that are used.

Table 9
Standard cables

		Length	Cable
PRI	LTU	4 m	NT5K40AA
PRI	LTU	8 m	NT5K41AA
PRI	LTU	12 m	NT5K86AA
DTI	LTU	12 m	NT5K85AA

Signalling schemes

Table 10 describes trunk types and the signalling used in the UK.

Table 10
Trunk signalling in the UK

Trunk circuit	Signalling allowed
Exchange line	Trunk signalling: • Earth calling • Loop calling disconnect clearing (500 ms disconnect clear signal required) • Loop calling guarded clearing • Address signalling: • LD or MF
Analogue DDI	LD or MF signalling
Digital PSTN	2.0 Mb/s DASS2 or ChAS circuits
4-wire analogue private circuits	Trunk signalling: • DC-5 • AC-15A Address signalling: • LD or MF
2-wire analogue private circuits	Trunk signalling: • DC-5 • Loop calling unguarded clearing Address signalling: • LD or MF
Digital private circuits	2 Mb digital private circuits

Ports available on Meridian 1 systems

Table 11 shows the ports available on Meridian 1 large systems.

Table 11
Meridian 1 ports available on Meridian 1 large systems (Part 1 of 2)

Port type	Card or telephone	Number of ports or channels
Trunk lines:		
Exchange line	NT5K18 Exchange line trunk card	8
DDI line	NT5K17 DDI trunk card	8
TIE line (AC15/DC5)	NT5K19 DC5/AC15 RAN/PAG card	4
RAN	NT5K19 DC5/AC15 RAN/PAG card	4
Paging	NT5K19 DC5/AC15 RAN/PAG card	4
Music	NT5K19 DC5/AC15 RAN/PAG card	4
DASS2 line	NT8D72 2.0 Mb PRI card	30
DPNSS TIE line	NT8D72 2.0 Mb PRI card	30
Q.931 line	NT8D72 2.0 Mb PRI card	30
ChAS TIE	QPC536 2.0 Mb DTI card	30
ChAS DDI	QPC536 2.0 Mb DTI card	30
DTD/MFC	NT5K20/NT5K48 XTD card	8

Table 11
Meridian 1 ports available on Meridian 1 large systems (Part 2 of 2)

Port type	Card or telephone	Number of ports or channels
Data ports:		
Data port	NT8D41 SDI Paddle Board	2
Data port	QPC513 ESDI	2
Data port	QPC841 QSDI	4
Data port	NT7D16 XDAC	6
Data ports on telephones:		
Data port	M2250 console	1
Data port	M2006 telephone	1
Data port	M2008 telephone	1
Data port	M2216 telephone	1
Data port	M2616 telephone	1

Table 12 lists the ports available on the Option 11C and 11C Mini.

Table 12
Ports available on the Meridian 1 Option 11C and 11C Mini (Part 1 of 2)

Port type	Card or telephone	No. of ports or channels
Trunk lines:		
Exchange line	NT5K18 Exchange line trunk card	8
DDI line	NT5K17 DDI trunk card	8
TIE line (AC15/DC5)	NT5K19 DC5/AC15 RAN/PAG card	4
RAN	NT5K19 DC5/AC15 RAN/PAG card	4
Paging	NT5K19 DC5/AC15 RAN/PAG card	4
Music	NT5K19 DC5/AC15 RAN/PAG card	4
DASS2 line	NTAK79 2.0 Mb PRI card	30
DPNSS TIE line	NTAK79 2.0 Mb PRI card	30
Q.931 line	NTAK79 2.0 Mb PRI card	30
ChAS TIE	NTAK10 2.0 Mb DTI card	30
ChAS TIE	NTAK10 2.0 Mb DTI card	30
ChAS DDI	NTAK10 2.0 Mb DTI card	30
DTD/MFC	NT5K20/NT5K48 XTD card	8

Table 12
Ports available on the Meridian 1 Option 11C and 11C Mini (Part 2 of 2)

Data ports:		
Data port	NTAK02 SDI/DCH card	1, 2, 3, or 4
Data port	NTAK03 TDS/DTR card	2
Data port	NTAK18 RSM	4
Data port	NT7D16 XDAC	4
Data ports on telephones:		
Data port	M2250 console	1
Data port	M2006 telephone	1
Data port	M2008 telephone	1
Data port	M2216 telephone	1
Data port	M2616 telephone	1

Extension port details

The following information applies to the NT5K02 Analog Line Card.

Port feeding

All speech path power is derived from the system power supply, except during power failure conditions.

Signalling and recall

Address signalling can be either LD or MF.

Recall signalling can be either Earth or Timed Break. Where Earth Recall is used, the maximum installation resistance of the earth feed is 200 ohms.

REN

The maximum REN that can be connected to the extension port varies according to the DC resistance of the extension cable.

Cabling Resistance	REN
< 900 ohms	3
< 600 ohms	4
< 350 ohmd	5

Telephones

The best overall performance of the Meridian 1 is obtained by using extension telephones of impedance class (a) of clause 4.3.2.1 of BS6305:1982. Details of impedance classes of approved telephones can be obtained from OFTEL.

Using Meridian 1 documents in the UK

When using Meridian 1 documents, ignore sections, except where noted, for the following equipment:

- Only Intelligent Peripheral Equipment (IPE) is supported
- The following IPE cards are supported: XUT, XCOT, XDTR, and XEM
- Remote Peripheral Equipment (RPE)
- Multi-frequency compelled signalling sender/receivers (used to support R2, Socotel, and L1 signalling)
- 1.5 Mbit/s Digital Trunk Interface (DTI) and Primary Rate Interface (PRI)
- SL-1 Telephones and add-on modules
- M1009, M1109, and M1309 analogue telephones
- M2009, M2018, M2112, M2317, and M3000 Digital Telephones
- M2016S Modular Digital Telephone
- QCW type and M1250 Attendant Consoles
- QMT8 SADM and QMT11 ASIM data units

Glossary of terms

Meridian 1 documents contain terms that may be unfamiliar to UK readers. Table 13 presents a list of terms and the equivalent terms in the UK.

Table 13
Some North American terms and the equivalent terms in the UK

North American Term	UK Term or meaning
500/2500 telephone	Analogue rotary dial/MF4 telephone
Central Office (CO)	Local Public Exchange
Cross connect wire	Jumper wire
DID (Direct Inward dialling)	Direct dialling In (DDI)
E1	2.0 Mb, 32 channel digital carrier (Megastream)
Grounding	Earthing
Set	Telephone
Station	Extension phone
TIE trunks	Private circuits
Tip wire	A wire
Ring wire	B wire
Toll trunks	Exchange lines
T1	1.5 Mb, 24 channel digital carrier (North American equivalent to Megastream)
WATS, FEX (FX1, FX2), CSA	Alternative public vendor network services (used only in North America)

NT5K17 – Direct Dialing Inward trunk card

Contents

This section contains information on the following topics:

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Common features 74
Microprocessor 75
Signalling and control 75
Signalling interface 75
Physical description 76
Technical description 76
Power requirements 77
Environmental specifications 77
PAD switching 77
Direct Dialing Inward description 78

Reference list

The following are the references in this section:

- *System Installation Procedures* (553-3001-210)
- *Features and Services* (553-3001-306)

Functional description

The NT5K17 Direct Dialing Inward (DDI) trunk card provides the interface between a trunk and either an NT8D37 Intelligent Peripheral Equipment (IPE) module or NT8D11 Common Equipment/Peripheral Equipment (CE/PE) module.

The NT5K17 DDI trunk card can be installed in any PE slot in an IPE or CE/PE module. Up to sixteen cards can be installed in each NT8D37 IPE module. The NT8D11 CE/PE module can hold up to ten DDI cards.

The NT5K17 DDI trunk card provides eight analog trunks, each trunk unit can be configured individually to operate as DDI trunks.

Refer to the "UK Analog Hardware Support" feature to assist in configuring the NT5K17 circuit card. This feature is described in *Features and Services* (553-3001-306).

Common features

Each NT5K17 DDI Trunk card:

- indicates self-test status during an automatic or manual self-test. Self-test pass is indicated on the faceplate LED.
- converts transmission signals from analog-to-digital and from digital-to-analog for up to 8 audio paths
- provides for loss pads appropriate to 3 dB, 6 dB and 8 dB Public Switched Telephone Network (PSTN) lines as governed by the UK System Loss plan
- provides termination impedance to match the UK three-component complex network
- provides transhybrid balance matching against the UK complex impedance
- provides Analog-to-Digital and Digital-to-Analog call path losses for DDI trunk units, values downloadable in the initial configuration stage.

Microprocessor

The NT5K17 DDI trunk card is equipped with an Intel 8052-type microprocessor that controls card operation. The microprocessor also provides the communication function for the card.

The NT5K17 DDI trunk card communicates with the controller card through a serial communication link. Features provided through the serial link include:

- card-identification
- self-test status reporting
- status reporting to the controller card
- maintenance diagnostics.

Signalling and control

The signalling and control portion of the NT5K17 DDI trunk card operates with the Central Processing Unit (CPU) to control card hardware. The card receives messages from the CPU over a signalling channel and returns status information to the CPU over the same channel. The signalling and control portion of the card provides the means for analog loop terminations to establish, supervise, and take-down call connections.

Signalling interface

Trunk signalling messages are three bytes in length. The messages are transmitted in channel zero of the DS-30X in A10 format.

Configuration information for the NT5K17 DDI trunk card is downloaded automatically from the CPU during power-up or manually by commands from maintenance programs.

Physical description

Measurements

Each NT5K17 DDI trunk card measures as follows:

Height:	318 mm (12.5 in.)
Depth:	254 mm (10 in.)

Connections

The NT5K17 DDI trunk card has eight units. Each trunk unit on the card connects to the backplane through an 80-pin connector. The backplane is cabled to the input/output (I/O) panel, and the I/O panel is cabled to the cross-connect terminal.

At the cross-connect terminal, each unit connects to external apparatus by A and B leads. For detailed termination and cross-connect information, see *System Installation Procedures* (553-3001-210).

Self-test

When the card is installed, the red LED on the faceplate flashes as the self-test runs. If the self-test completes successfully, the card is automatically enabled (if it has been configured in software) and the LED goes out. If the self-test fails, the LED will remain lit. The LED will also remain lit if one or more units on the card become disabled while the card is operating.

Technical description

The technical details of the NT5K17 Direct Dialling Inward trunk card are outlined in the following section.

Power requirements

Table 14 lists the power requirements for the NT5K17 DDI trunk card.

Table 14
NT5K17 power requirements

Voltage	Idle Current	Active current
+/–15.0 V dc	195 ma	195 ma
–15.0 V dc	240 ma	215 ma
+8.5 V dc	85 ma	85 ma
–48 V dc	50 ma	500 ma
+5.0 V dc	195 ma	175 ma

Environmental specifications

Table 15 lists the environmental specifications for the NT5K17 DDI card.

Table 15
NT5K17 Environmental specifications

Parameter	Specifications
Operating temperature	0 to 50 degrees C, ambient
Operating humidity	5 to 95% RH (non-condensing)
Storage temperature	–50 to +70 degrees C

PAD switching

Loss values for the NT5K17 DDI trunk card are as follows:

Loss	Analog-to-Digital	Digital-to-Analog
PAD out	–4 dB	–3 dB
PAD in	–2 dB	–1 dB

The transmission properties of each trunk are characterized by the class-of-service (COS) assigned in the Trunk Data Block LD 14.

- PADs should be switched OUT when connecting to “long line” (0 – 8 dB) public exchange trunk interfaces. (COS = LOL)
- PADs may be switched IN when connecting to “short line” (0 – 6 dB) public exchange trunk interfaces. (COS = SHL)

Direct Dialing Inward description

Each unit on the NT5K17 DDI card is capable of operating as a DDI trunk. Table presents a summary of NT5K17 DDI trunk card signalling states. For information on features and signalling arrangements, refer to *Features and Services* (553-3001-306).

Idle State

When the public exchange presents a high impedance of 8.5K Ω or greater to the DDI unit, the NT5K17 DDI trunk card is in the idle state. Ground is present on the A wire and negative battery (–48 V dc) is present on the B wire.

Seize

The public exchange initiates a call by placing a low resistance loop (2.2K Ω or less) across the A and B leads. The increased current flow will trigger a front end detector. A message is sent to the Central Processing Unit (CPU), and the microprocessor prepares for receipt of dialing digits.

Dialing

The public exchange sends address digits in the form of make and break signals. Signalling rates are from 7 PPS to 12 PPS with a nominal rate of 10 PPS and a 40 to 84% break interval. Break impedance is 8.5K Ω or greater, while make impedance is 2.22K Ω or less.

Answer

When the terminating party answers, the DDI unit reverses battery and ground on the A and B leads (-48 V dc on A and Ground on B).

Far End Release

The public exchange disconnects the call by sending a forward clear signal. The forward clear signal is a high impedance loop (8.5K Ω or greater) in the direction of the DDI unit.

When the DDI unit detects the high impedance loop, it sends a change of state message to the CPU. If this state lasts for greater than 150 ms, the CPU will send a release acknowledgment message to the DDI unit. The DDI unit will respond by returning to the idle state.

Near End Release

When the Meridian 1 disconnects the call, the CPU sends a message to the DDI unit, which in turn will respond by returning to the idle state.

When the public exchange detects the idle state, it restores the high impedance loop on the A and B wires. The CPU interprets the high impedance loop as a release acknowledgment signal from the public exchange.

Backward Busy or Disabled

When a DDI unit is busy or disabled and cannot accept a call, it sends a backward busy signal to the public exchange. In this state, both battery and ground are removed from the A and B wires.

Table 16
Summary of NT5K17 DDI Trunk card signalling states (Part 1 of 2)

Signal	Public Exchange State	Meridian 1 State
Idle	High Impedance Loop (8.5K Ω or greater)	Ground on A wire –48 V dc on wire
Seize	Low Impedance Loop (2.2K Ω or less)	—
Dialing	Break: High Impedance Loop Make: Low Impedance Loop	—
Answer	—	–48 V dc on wire Ground on B wire
Public Exchange disconnects first (Far End Release)	High Impedance Loop	—
Far End Release acknowledgment	—	Ground on A wire –48 V dc on B wire

Table 16
Summary of NT5K17 DDI Trunk card signalling states (Part 2 of 2)

Signal	Public Exchange State	Meridian 1 State
Meridian 1 disconnects first (Near End Release)	—	Ground on A wire –48 V dc on B wire
Near End Release acknowledgment	High Impedance Loop	—
Backward Busy	—	Open Circuit on A wire Open Circuit on B wire

NT5K18 – Exchange Line trunk card

Contents

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Trunk types description 86
- Ground start operation 86
- Loop start operation 87

Features description 88
- Periodic Pulse Metering (PPM) 88

Reference list

The following are the references in this section:

- *Meridian 1 Installation Planning* (553-3001-120)
- *System Installation Procedures* (553-3001-210)

Functional description

The NT5K18 Exchange Line trunk card provides the interface between a trunk and either an NT8D37 Intelligent Peripheral Equipment module (IPE) or NT8D11 Common Equipment/Peripheral Equipment (CE/PE) module.

The Exchange Line trunk card can be installed in any PE slot in an IPE or CE/PE Module. Up to sixteen cards can be installed in one NT8D37 IPE module. An NT8D11 CE/PE module can hold up to ten NT5K18 Exchange Line trunk cards.

Refer to the "UK Analog Hardware Support" feature to assist in configuring the NT5K18 circuit card. This feature is described in *Features and Services* (553-3001-306).

Trunk types supported

The Exchange Line trunk card has eight identical units. The trunk type of each unit is configured independently in the Trunk Data Block LD 14 as one of the following:

- Exchange line – ground start
- Exchange line – loop start with disconnect clear release
- Exchange line – loop start with loop guarded release

The Exchange Line trunk card also supports Direct Inward System Access (DISA).

Common features

The NT5K18 Exchange Line trunk card does the following:

- allows trunk type to be configured on a per unit basis
- indicates self-test status during an automatic or manual self-test
- provides card-identification for auto configuration, and for determining the serial number and firmware level of the card
- converts transmission signals from analog-to-digital and from digital-to-analog

- provides complex terminating impedance in compliance with regulatory UK standards
- provides complex balance impedance in compliance with regulatory UK standards.

Microprocessor

The NT5K18 Exchange Line trunk card is equipped with an Intel 8052-type microprocessor which controls card operation. The microprocessor also provides the communication function for the card.

The NT5K18 Exchange Line trunk card communicates with the controller card through a serial communication link. Features provided through the link include:

- card-identification
- self-test status reporting
- status reporting to the controller card
- maintenance diagnostics.

Signalling and control

The signalling and control portion of the NT5K18 Exchange Line trunk card operates with the CPU to control the card hardware.

The card receives messages from the CPU over a signalling channel in the DS-30X loop and returns status information to the CPU over the same channel. The signalling and control portion of the card provides the means for analog loop terminations to establish, supervise, and take-down call connections.

Signalling interface

Trunk signalling messages are three bytes in length. The messages are transmitted in channel zero of the DS-30X in A10 format.

Configuration information for the NT5K18 Exchange Line Trunk Card is downloaded from the CPU automatically during power-up. or manually by commands from maintenance programs.

Physical description

A physical description of the NT5K18 Exchange Line trunk card is given below.

Measurements

Each NT5K18 Exchange Line trunk card measures as follows:

Height:	318 mm (12.5 in.)
Depth:	254 mm (10 in.)

Connections

The NT5K18 Exchange Line trunk card has eight units. Each trunk unit on the card connects to the backplane through an 80-pin connector. The backplane is cabled to the input/output (I/O) panel, and the I/O panel is cabled to the cross-connect terminal. At the cross-connect terminal, each unit connects to external apparatus by A and B leads. For detailed termination and cross-connect information, see *System Installation Procedures* (553-3001-210).

Self-test

When the card is installed, the red LED on the faceplate flashes as the self-test runs. If the self-test completes successfully, the card is automatically enabled (if it has been configured in software) and the LED goes out. If the self-test fails, the LED remains lit. The LED also remains lit if one or more units on the card become disabled while the card is operating.

Technical description

The technical details of the NT5K18 Exchange Line trunk card are outlined in this section.

Power requirements

Table 17 on page 85 provides the power requirements for the NT5K18 Exchange Line trunk card.

Table 17
NT5K18 Power requirements

Voltage	Idle Current	Active current
+/–15.0 V dc	330 ma	330 ma
+8.5 V dc	70 ma	70 ma
–48 V dc	30 ma	30 ma
+5.0 V dc	250 ma	250 ma

Environmental specifications

Table 18 lists the environmental specifications of the NT5K18 Exchange Line trunk card.

Table 18
NT5K18 Environmental specifications

Parameter	Specifications
Operating temperature	0 to 50 degrees C, ambient
Operating humidity	5 to 95% RH (non-condensing)
Storage temperature	–50 to +70 degrees C

PAD switching

The transmission properties of each trunk are characterized by the Class Of Service (COS) assigned in the Trunk Data Block LD 14.

- PADs should be switched OUT when connecting to “long line” (0 – 8 dB) public exchange trunk interfaces. (COS = LOL)
- PADs may be switched IN when connecting to “short line” (0 – 6 dB) public exchange trunk interfaces. (COS = SHL)

Trunk types description

Each NT5K18 Exchange Line trunk card unit is capable of operating as one of the following:

- Exchange line – Ground Start
- Exchange line – Loop Start with Loop Disconnect Clear Release
- Exchange line – Loop Start with Loop Guarded Release

In addition, all exchange line types support Periodic Pulse Metering (PPM), or Subscriber Pulse Metering (SPM), as it is sometimes called.

For information on features and signalling arrangements, see *Features and Services* (553-3001-306).

Ground start operation

Ground start operation is configured in software and implemented through software download messages.

Idle State

In the idle state, the A wire from the Public Exchange is open and a high resistance potential is present on the A wire of the trunk. The A wire is monitored for the application of ringing from the Public Exchange.

Call placed by Public Exchange

The Public Exchange places a call by applying ringing to the A wire. The Exchange Line Trunk card scans for ringing detection before presenting the call to an attendant and tripping the ringing. A low resistance is placed across the A and B wires and a speech path is established.

Call placed by Meridian 1

The Meridian 1 places a call by applying ground to the B wire and the Public Exchange acknowledges by applying ground to the A wire. The Meridian 1 then places the trunk unit into the on-line state (low impedance loop), and removes the ground from the B wire. When the Public Exchange is ready to receive digits, it returns dial tone. The Meridian 1 sends digits in the form of Dual Tone Multifrequency (DTMF) tones or dial pulses.

Public Exchange disconnects first

The Public Exchange disconnects a call by removing the ground on the A wire of the trunk. The Meridian 1 detects the drop in current and responds by returning to the idle state.

Meridian 1 disconnects first

The Meridian 1 disconnects a call by removing its on-line state and drawing only a very low current from the A and B wires.

Loop start operation

Loop start operation is configured in software and is implemented in the card through software download messages.

Idle state

When the Exchange Line trunk is idle, it provides a high impedance toward the public exchange for isolation and dc detection. The public exchange applies -50 V dc on the B wire of the trunk and ground on the A wire.

Call placed by Public Exchange

The public exchange initiates a call by applying ringing to the B wire and –50 V dc to the A wire. The Meridian 1 ringing detector is tripped and the Exchange Line trunk card place a low resistance dc loop between the A and B wires. This low resistance loop serves as a called subscriber answer signal (CSA) to the public exchange. The public exchange responds by removing the ringing signal and returning the A and B wires to their normal conditions.

Call placed by Meridian 1

To place a call from a telephone set or attendant console, the Meridian 1 places a low resistance loop across the A and B leads. When the public exchange is ready to receive digits, it returns dial tone. The Meridian 1 sends digits in the form of Dual Tone Multifrequency (DTMF) tones or dial pulses.

Call disconnect

Calls can be disconnected by either Loop Disconnect Clear operation or by Loop Guarded release operation.

Loop Disconnect Clear operation

The Meridian 1 ends a call by disconnecting the A and B wires for at least 350 milliseconds. The public exchange responds by sending a clear signal, and the Meridian 1 returns to the idle state when the signal is detected.

The public exchange disconnects a call by sending the disconnect clear signal, which is done by removing one or both of the idle conditions from the A and B wires for a timed period. When the Meridian 1 receives the signal, it returns to the idle state.

Loop Guarded Release operation

The Meridian 1 clears a call by replacing its on-line state by a high impedance state. When the public exchange detects the high impedance state, it sends a guarded release signal. Within 220 milliseconds of receiving the guarded release signal, the Meridian 1 will return to the idle state.

The public exchange clears a call by sending the guarded release signal, which is done by removing one or both of the idle conditions on the A and B wires for a specified time. When the current on the PSTN line has fallen to less than 1 ma, the Meridian 1 will return to the idle state within 220 milliseconds.

Features description

Periodic Pulse Metering (PPM)

All trunk types on the NT5K18 circuit card support the Periodic Pulse Metering (PPM) feature, or Subscriber Pulse Metering (SPM), as it is sometimes called.

Periodic Pulse Metering allows the user of each telephone on a Meridian 1 to keep an accurate record of Public Switched Telephone Network (PSTN) and Direct Outward Dialing (DOD) calls for billing or administration.

> ***Note:*** Although the PPM feature is configured on a per trunk basis, the message which is downloaded to hardware is on a per card basis. When PPM is assigned to a unit, every unit on the card automatically receives the feature.

For information on PPM feature requirements, feature interactions, and feature implementation, refer to *Features and Services* (553-3001-306).

NT5K19 – Analog TIE trunk card

Contents

This section contains information on the following topics:

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- Trunk types supported 92
- Common features 92
- Trunk circuit features 93
- Signalling and control 93
- Microprocessor 94
- Signalling interface 94

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Technical description 95
- Power requirements 95
- Environmental specifications 95
- PAD switching 96

Trunk types description 96
- 2-wire and 4-wire E&M Type 1 trunk operation (DC-5) 97
- AC15 trunk operation (2280 Hz TIE trunk) 99
- Recorded Announcement/Music trunk operation 101
- Paging trunk operation 104
- Emergency Recorder (RCD) operation 104

Reference list

The following are the references in this section:

- *System Installation Procedures* (553-3001-210)
- *Features and Services* (553-3001-306)

Functional description

The NT5K19 Analog TIE trunk card provides the interface between a trunk facility and either an NT8D37 Intelligent Peripheral Equipment module (IPE) or NT8D11 Common Equipment/Peripheral Equipment (CE/PE) module.

The NT5K19 Analog TIE trunk card can be installed in any PE slot in an NT8D37 IPE module or NT8D11 CE/PE module. Up to sixteen cards can be installed in one NT8D37 IPE module. The NT8D11 CE/PE module can hold up to ten NT5K19 Analog TIE trunk cards.

Refer to the "UK Analog Hardware Support" feature to assist in configuring the NT5K19 circuit card. This feature is described in *Features and Services* (553-3001-306).

Trunk types supported

The NT5K19 Analog TIE trunk card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 TIE trunk (DC5)
- 2-wire E&M Type 1 TIE trunk (DC5)
- 2280 Hz TIE trunk (AC15)
- Recorded Announcement trunk (RAN)
- Music trunk (MUS)
- Paging trunk (PAG)
- Emergency Recorder trunk (RCD).

Note: Type I signalling uses two signalling wires plus ground.

Common features

The NT5K19 Analog TIE trunk card:

- converts transmission signals from analog-to-digital and from digital-to-analog
- enables and disables individual ports or the entire card under software control

- provides outpulsing on the card. Make break ratios are defined in software and down loaded during power up and by software commands.
- provides indication of card status from self-test diagnostics on faceplate Light Emitting Diode (LED)
- allows trunk type to be configured on a per port basis in software
- provides termination against 600 Ω for 4-wire E&M trunk circuits
- provides termination and transhybrid balance matching against the UK three component complex impedance network for 2-wire E&M trunk circuits
- provides termination against 600 Ω for AC15 trunk circuits
- provides for loss pads appropriate to low loss lines or point-to-point lines on 4-wire E&M and AC15 connections
- provides a Paging, Recorded Announcement, Emergency Recorder, and Music interface.

Trunk circuit features

Each NT5K19 trunk circuit is capable of providing the following:

- 2-wire and 4-wire E&M Type 1 trunk (DC5-A) operation
- 2280 Hz TIE trunk (AC15-A) operation
- Paging access
- Recorded Announcement access
- Music on Hold access
- Emergency Recorder access.

Signalling and control

The signalling and control portion of the trunk card works with the Meridian 1 Central Processing Unit (CPU) to operate the card hardware. The card receives messages from the Meridian 1 CPU over a signalling channel in the DS30X loop and returns status information to the CPU over the same channel. The signalling and control portion of the card provides the means for analog loop terminations to establish, supervise and take-down call connections.

Microprocessor

The microprocessor provides an intelligent interface between an analog trunk and the Meridian 1 system core.

The NT5K19 Analog TIE trunk card uses the Intel 83C51FA microprocessor. It contains 8K of Read Only Memory (ROM) and 256 bytes of Random Access Memory (RAM). It operates asynchronously to the system clock, and is interrupt driven to provide synchronization with system events.

Signalling interface

Signalling messages for the trunk are three bytes in length. The messages are transmitted in channel zero of the DS30X in A10 format.

Configuration information for the NT5K19 Analog TIE trunk is automatically downloaded from the Meridian 1 CPU during power up and manually by commands from maintenance programs.

Physical description

The physical characteristics of the NT5K19 Analog TIE trunk card are given below.

Measurements

Each NT5K19 Analog TIE trunk card measures as follows:

Height:	318 mm (12.5 in.)
Depth:	254 mm (10 in.)

Connections

The NT5K19 Analog TIE trunk card has four units. Each unit on the card connects to the backplane through an 80-pin connector. The backplane is cabled to the input/output (I/O) panel, and the I/O panel is cabled to the cross-connect terminal.

At the cross-connect terminal, each unit connects to external apparatus by A and B leads. For detailed termination and cross-connect information, see *System Installation Procedures* (553-3001-210).

Technical description

The technical details of the NT5K19 Analog TIE trunk card are outlined below.

Power requirements

Table 19 lists the power requirements for the NT5K19 Analog TIE trunk card.

Table 19
NT5K19 Power requirements

Voltage	Idle Current	Active current
+/-15.0 V dc	200 ma	200 ma
–15.0 V dc	160 ma	160 ma
+8.0 V dc	55 ma	55 ma
+5.0 V dc	120 ma	120 ma
–48 V dc	10 ma	40 ma

Environmental specifications

Table 20 provides the environmental specifications for the NT5K19 Analog TIE trunk card.

Table 20
NT5K19 Environmental specifications

Parameter	Specifications
Operating temperature	0 to 50 degrees C, ambient
Operating humidity	5 to 95% RH (non-condensing)
Storage temperature	–50 to +70 degrees C

PAD switching

Table 21 presents the digital-to-analog and analog-to-digital loss for the NT5K19 Analog TIE trunk card.

Table 21
NT5K19 loss values

Trunk type	Digital-to-Analog loss	Analog-to-Digital loss
2-wire E&M	0 dB	–3 dB
4-wire E&M (PAD out)	0 dB	0 dB
4-wire E&M (PAD in)	4 dB	0 dB
AC15 (PAD out)	0 dB	0 dB
AC15 (PAD in)	4 dB	0 dB
Paging	4 dB	—
RAN/Music	—	3 dB
Emergency Recorder	4 dB	3 dB

The loss PADs for AC15 and 4-wire E&M trunks are selected by the class of service (COS) assigned to the Trunk Data Block LD 14.

- PADs should be switched OUT when trunks are connected using on-premise wiring.
  (COS = NTC)
- PADs should be switched IN when trunks are connected using a leased circuit.
  (COS = TRC)

Trunk types description

Each unit on the NT5K19 Analog TIE trunk card can operate as one of the following:

- 2-wire and 4-wire E&M trunk (DC-5)
- 2280 Hz TIE trunk (AC15)

- Recorded Announcement (RAN) trunk
- Paging (PAG) trunk
- Music (MUS) trunk
- Emergency Recorder (RCD) trunk.

For information on features and signalling arrangements, see *Features and Services* (553-3001-306).

2-wire and 4-wire E&M Type 1 trunk operation (DC-5)

The NT5K19 Analog TIE trunk card supports the United Kingdom DC5-A method of signalling, which is used between a PBX and co-sited equipment. The two signalling wires used, E and M, are electrically separated from the associated speech circuit. Signals are sent on the M wire and received on the E wire.

Send signals

All signals are sent in the form of either Earth-On or Earth-Off applied to the M wire. Earth-On is the application of ground to the M wire through a resistance of 1250 Ω, while Earth-Off is the removal of the Earth-On condition. In both Earth-On and Earth-Off conditions, a grounded 1µF capacitor is applied to the M wire.

Receive signals

All received signals are in the form of Earth-On or Earth-Off applied to the E wire. Earth-On is the application of ground to the E wire through a resistance of 1500 Ω. Earth-Off is the application of ground to the E wire through a resistance of greater than 400K Ω. In both Earth-On and Earth-Off conditions, a grounded 1µF capacitor is applied to the M wire.

Idle state

In the Idle state, the M wire receives an “Idle signal” from the Meridian 1 and is placed in the Earth-Off condition.

Seize

To place an outgoing call, the Meridian 1 at the near end sends a seizing signal through the M-wire to the far end. The incoming end (far end) recognizes the seize signal, busies the circuit against outgoing calls, and prepares to receive digits. The continued receipt of the seizing signal by the far end is accepted as a "hold" signal.

Dialing

Digits are sent through the near end M wire in the form of 10 pps pulses of the Earth-Off condition or DTMF digits.

Answer

When the called party answers, the far end sends an "answer" signal through the M wire.

Call disconnect

Either party can disconnect the call by applying a clear signal to the M wire. The far end applies a "clear back" signal, while the near end applies a "clear forward" signal. The circuit remains busy until both clear forward and clear backward signals have been exchanged.

Table 22 provides a summary of NT5K19 DC-5 signalling states.

Table 22
Summary of NT5K19 DC-5 signalling states (Part 1 of 2)

Signal	Outgoing PBX sending condition – M Wire	Incoming PBX sending condition – M Wire
Idle	Earth-Off	Earth-Off
Seize	Earth-On	—
Hold	Continuation of seize signal	—
Dialing:		
Digit Pulse	Earth-Off pulses in step with dial pulses	—
DTMF	DTMF digits	—
Answer	—	Earth-On

Table 22
Summary of NT5K19 DC-5 signalling states (Part 2 of 2)

Signal	Outgoing PBX sending condition – M Wire	Incoming PBX sending condition – M Wire
Far End Release	Earth-Off for longer than 300 milliseconds	—
Near End Release	—	Earth-Off for longer than 300 milliseconds

AC15 trunk operation (2280 Hz TIE trunk)

The NT5K19 Analog TIE trunk card supports the United Kingdom AC15-A method of signalling, which is used between two PBX machines. The system is based on a single voice frequency, 2280 Hz, method of signalling.

In this system, four signalling wires are used: one pair for forward signals and one pair for backward signals. The transmit pair through which signals are transmitted is the receive pair at the far end. All signals are in the form of either tone-on or tone-off. Table 23 provides a summary of signals in both transmit and receive directions.

Table 23
NT5K19 tone-on and tone-off signalling

Signalling direction	Tone-On	Tone-Off
Transmit	Signalling tone of 2280 Hz +/-5 Hz	Removal of the Signalling tone
Receive	Signalling tone of 2280 Hz +/-15 Hz	Any frequency or combination of frequencies with total power less than -40 dBmO

Tone-on signals are received at two power levels, high and low, depending on the length of the tone. Table 24 summarizes tone-on power levels.

Table 24
NT5K19 tone-on receive levels

Duration of tone	High/Low Tone-On	dB Level
less than 300 ms	High	–4 to –20 dBmO
300 to 550 ms	High	–4 to –20 dBmO
greater than 550 ms	Low	–14 to –30 dBmO

Idle state

In the idle state, the PBX machines at both ends of the circuit apply an idle signal to indicate they are free to accept incoming calls. Both PBX machines are in the tone-on condition.

Seize

To place an outgoing call, the outgoing PBX applies a seize signal to the signalling path. The outgoing PBX is now in the tone-off state. The PBX at the incoming end recognizes the seize signal, busies the circuit against outgoing calls, and prepares to receive digits.

Dialing

The outgoing PBX sends address digits in the form of 10 pps pulses of signalling tone (2280 Hz). Dual Tone Multifrequency (DTMF) transfer of address information can also be used.

Answer

When the called party answers, the incoming PBX applies an answer signal to the signalling path. The incoming PBX is now in the tone-off condition. The continued receipt of the seizing signal is accepted by the incoming PBX as a forward hold signal. The continued receipt of the answer signal is accepted by the outgoing PBX as a backward hold signal.

Call disconnect

Either party can disconnect the call by applying the appropriate signal. The incoming PBX applies a “clear back” signal, while the outgoing PBX applies a “clear forward” signal. The circuit remains busy until both clear forward and clear backward signals have been exchanged.

Table 25 provides a summary of NT5K19 AC15 signalling states.

Table 25
Summary of NT5K19 AC15 signalling states

Signal	Outgoing PBX	Incoming PBX
Idle	Tone-on	Tone-on
Seize	Tone-off	—
Forward Hold	Tone-off	—
Dialing	Tone-on pulses corresponding to digit signal sent	—
Answer	—	Tone-off
Backward Hold	—	Tone-off
Clear Forward	Tone-on for longer than 300 ms	—
Clear Back	—	Tone-on for longer than 300 ms

Recorded Announcement/Music trunk operation

When used in the Recorded Announcement/Music mode, the trunk circuit is connected to a customer provided recorded announcement machine or a music source.

The NT5K19 Analog TIE trunk card supports the following announcement machines:

- Start mode announcement machines
  (for example, Code-A-Phone)
- Continuous mode announcement machines
  (for example, Audichron)

Start mode

In start mode, the Analog TIE trunk card provides a startpulse to the announcement machine to begin playback of the message. The announcement source requires the following:

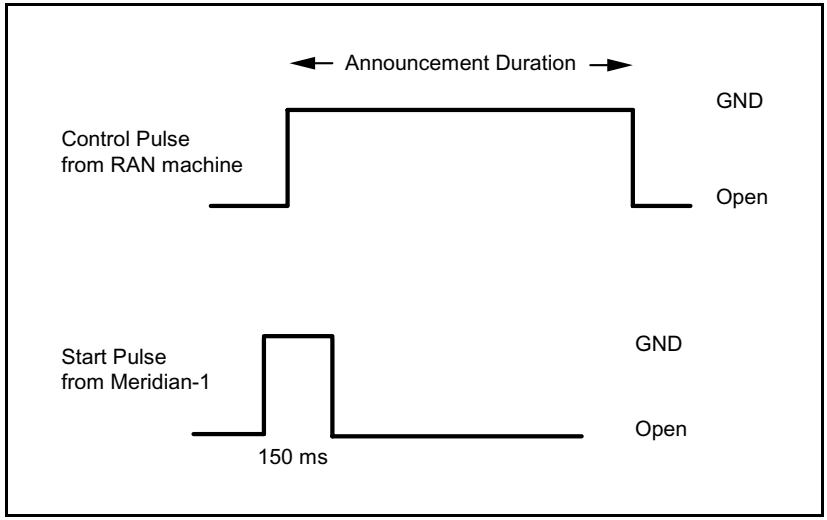
- an impedance of 4 Ω or less
- ground to the trunk unit when playing and an open circuit when idle. This is done through a control lead to the trunk circuit.
- default signal level of -9 dBm (in 600 Ω) adjustable to a level of 10 dBm.

To start the announcement, the NT5K19 Analog TIE trunk card provides a momentary ground signal (150 ms) to the source. The announcement machine should then start playing its message.

The NT5K19 trunk card expects status information from the announcement machine, that is, whether it is idle or playing. For this reason, the announcement machine requires a control lead to the trunk circuit.

Figure 2 on page 103 shows recorded announcement in start mode.

Figure 2
Recorded announcement – start mode



Continuous mode

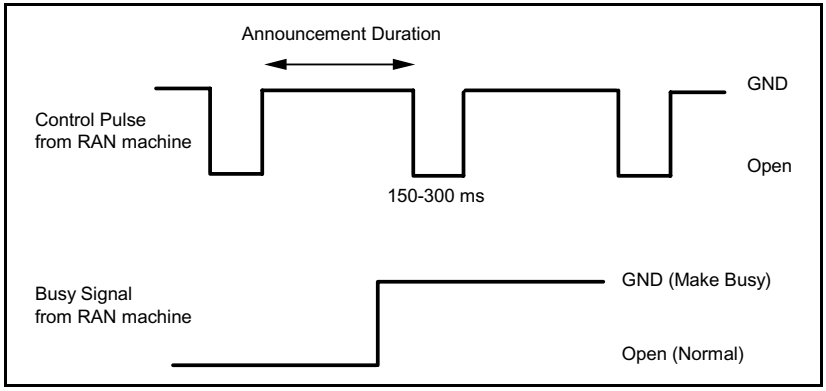
The requirements for continuous mode announcement machines are as follows:

- an impedance of 4 Ω or less
- generation of a control pulse (150 – 300 ms) at the start of the announcement period
- default signal level of –9 dBm (in 600 Ω) adjustable to a level of 10 dBm.

The announcement machine may provide a separate busy signal when the machine is recording or erasing a message or if the machine is malfunctioning. The busy signal will be used by the Meridian 1 for maintenance purposes.

Figure 3 on page 104 shows recorded announcement in continuous mode.

Figure 3
Recorded announcement – continuous mode



Music source

The music source should provide an impedance of 600 Ω. The default signalling level should be –9 dBm (in 600 Ω) adjustable to a level of 10 dBm.

Paging trunk operation

When used in the paging mode, the trunk circuit is connected to a customer-provided paging amplifier system. When accessed, the circuit card will provide a loop closure. In a typical application, the loop closure will cut off a music supply and switch the paging trunk transmission path to the paging amplifier.

Emergency Recorder operation

The interface to an emergency Recorder (RCD) unit is the same as to that of a RAN unit in continuous mode. The recorders must be voice activated, since the Meridian 1 does not supply the recorder with a start pulse when the trunk is in use.

The transmission path provided by the Meridian 1 is both ways. If warning tone needs to be applied, it can be supplied by the recording device.

Planning the site and preparing for installation

Contents

This section contains information on the following topics:

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Wire sizes and cable lengths 106
Power failure transfer requirements 107
Earthing requirements 109
Lightning protection 109
Modem requirements 109
Hardware switch settings 109
Power supply switch settings (NT6D42) 109
Hardware switch settings 111
Power supply switch settings (NT6D42) 111
Power supply switch settings (NT7D04) 114
Conference, tone and digit switch settings (NT8D17) 115
PRI switch settings (NT8D72) 115
Dual PRI switch settings (NTCK43) 115

Reference list

The following are the references in this section:

- *Installation Planning* (553-3001-120)
- *ISDN PRI: Installation* (553-2901-201)

Use this chapter and *Installation Planning* (553-3001-120) to determine site requirements, plan the site, and prepare for installation.

Site requirements

Wire sizes and cable lengths

Install the Meridian 1 system so that it is in accordance with BS6701 Parts 1 & 2. All building telephone wiring must be copper or aluminum and a minimum of 0.5 millimeters in diameter. Table 26 shows the maximum lengths and losses of cabling.

Table 26
Wire sizes and cable length

Interface card	Maximum extension length or cabling loss	Associated PSTN line loss and PSTN interface setting
NT8D01 Digital Line card	915 m	N/A
NT5K02 Analogue Line card (including Rapport telephone connections)	2 dB	8dB, long E/L setting
	2 dB	6dB, short E/L setting
	4 dB	6dB, long E/L setting
	5 dB	3dB, short E/L setting
	7 dB	3dB, long E/L setting
	6 dB	Digital (that is, DASS2 or ChAS)
	1500 m	Digital (that is, DASS2 or ChAS) when used with Rapport
Power Fail Transfer Unit	200 m	N/A
NT8D73 PRI card or QPC536 DTI card	200 m (to LTU)	

Power failure transfer requirements

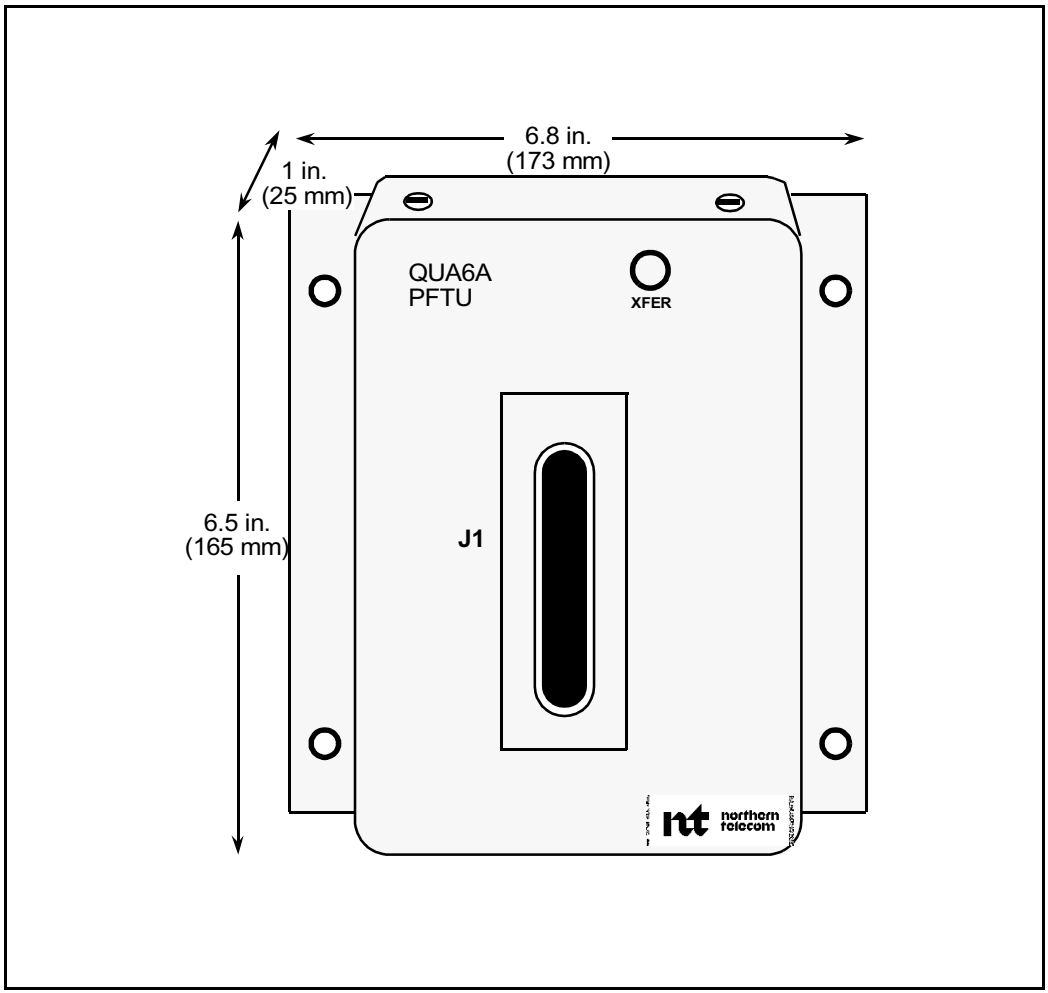
The QUA6 Power Failure Transfer Unit (PFTU) provides emergency telephone service during commercial power outages or certain system malfunctions. Each QUA6 PFTU supports up to five designated telephones. The PFTU bypasses the Meridian 1 and connects the designated telephones directly to the Central Office during power failures, when activated by the system monitor, or when activated manually.

The PFTU requires a -48 V dc input and a positive return (ground). In the UK, the PFTU is powered from a separately fused auxiliary -48V feed from the external power system. Input requirements are as follows:

QUA6 PFTU: –42 to –56 V dc at 150 mA nominal

The QUA6 PFTU is a wall-mounted unit. The QUA6 PFTU weighs 2 lbs (0.8 kg). Figure 4 on page 108 shows the dimensions of the unit.

Figure 4
QUA6 PFTU dimensions



Earthing requirements

A combined protective/functional earth must connect the system TJF directly to the earth at the building entry point. The cross sectional area of the earth conductor must be at least 35 mm^2. The resistance of this earth must be checked at the following points:-

- The LRE terminal in the Meridian 1
- The power cabinet (where applicable) and Meridian 1 frame grounds

The system earth is not supplied by the input lead of the main. The maximum total resistance from a Meridian 1 pedestal to the main building ground must not exceed 0.5 ohms.

For more information on grounding, refer to “Grounding the system” on page 153.

Lightning protection

If a cable connecting to any of the following circuits runs into the building through an external cable run, approved surge arresters must be installed at the Test Jack Frame:

- NT5K02 Analogue Line card
- NT5K19 Analogue TIE trunk card
- NT8D02 Digital Line card

Modem requirements

Equip the Meridian 1 system with a British Telecom (BT) RACE modem to allow remote access.

Hardware switch settings

Power supply switch settings (NT6D42)

The NT6D42 DC Ringing Generator includes switches, allowing the selection of Ringing Frequency, Ringing Voltage, and Message Waiting Voltage options.

Ringing Frequency

Table 27
Ringing frequency switch setting SW1

Ringing Frequency	Switch setting SW1		
	1	2	3
20 Hz	ON	OFF	OFF
25 Hz	OFF	ON	OFF
50 Hz	OFF	OFF	ON

To meet regulatory requirements, ringing frequency must be set to 25 Hz.

Voltage

Table 28
Ringing voltage / Message Waiting voltage switch seting SW2

Ringing Voltage	Message Waiting Voltage	Switch setting SW1			
		1	2	3	4
86V ac	– 120V dc	OFF	OFF	OFF	OFF
86V ac	– 150V dc	OFF	OFF	OFF	ON
80V ac	– 120V dc	ON	OFF	OFF	OFF
80V ac	– 150V dc	ON	OFF	OFF	ON
75V ac	– 120V dc	OFF	ON	ON	OFF
75V ac	– 150V dc	OFF	ON	OFF	ON
70V ac	– 120V dc	OFF	OFF	ON	OFF
70V ac	– 150V dc	OFF	OFF	ON	ON

Hardware switch settings

Power supply switch settings (NT6D42)

The NT6D42 DC Ringing Generator includes switches allowing selection of Ringing Frequency, Ringing Voltage, and Message Waiting Voltage options.

Ringing Frequency

Table 29
Ringing Frequency switch settings SW1

Ringing Frequency	Switch Setting SW1		
	1	2	3
20 Hz	ON	OFF	OFF
25 Hz	OFF	ON	OFF
50 Hz	OFF	OFF	ON

To meet regulatory requirements, ringing frequency must be set to 25 Hz.

Ringing and Message Waiting Voltage

Table 30
Ringing Voltage and Message Waiting Voltage switch settings SW2

Ringing Voltage	Message Waiting Voltage	1	2	3	4
86V ac	– 120V dc	OFF	OFF	OFF	OFF
86V ac	– 150V dc	OFF	OFF	OFF	ON
80V ac	– 120V dc	ON	OFF	OFF	OFF
80V ac	– 150V dc	ON	OFF	OFF	ON
75V ac	– 120V dc	OFF	ON	ON	OFF
75V ac	– 150V dc	OFF	ON	OFF	ON
70V ac	– 120V dc	OFF	OFF	ON	OFF
70V ac	– 150V dc	OFF	OFF	ON	ON

Jumper settings

Table 31
Jumper settings for Message Waiting Voltage

Jumper locations		High / Low Voltage Message Waiting
E1	E2	
OFF	ON	Low
ON	OFF	High
ON	ON	N/A
OFF	OFF	N/A

Note: A jumper installed on E1 or E2 is the ON condition. A jumper not installed is the OFF condition.

To meet regulatory requirements, SW2 must be set to a ringing voltage of 80V ac and a jumper used to select low voltage Message Waiting. Note that this jumper overrides the Message Waiting voltage set by SW2.

Ringing Output

Table 32
Ringing output

Impedance	J5 jumper location
Low	Connect pins 1 and 2.
High	Connect pins 2 and 3

To meet regulatory requirements, pins 1 and 2 must be connected to set the ringing output to low impedance.

Power supply switch settings (NT7D04)

The NT7D04 DC Common and Peripheral Equipment Power Supply includes switches, allowing selection of Ringing Frequency and Ringing Voltage.

Ringing Frequency Ringing VoltageSwitch Setting S300

Table 33
Ringing Frequency and Ringing Voltage switch settings S300

Ringing Frequency	Ringing Voltage	Switch setting S300			
		1	2	3	4
20 Hz	86V ac	Off	Off	Off	*
20 Hz	80V ac	On	Off	Off	*
25 Hz	86V ac	Off	On	Off	*
25 Hz	80V ac	On	On	Off	*
25 Hz	70V ac	Off	Off	On	*
50 Hz	86V ac	On	Off	On	*
50 Hz	80V ac	Off	On	On	*
50 Hz	70V ac	On	On	On	*

Note: * (star) – not applicable; can be on or off.

To meet regulatory requirements, ringing frequency must be set to 25 Hz and ringing voltage to 80V.

Conference, tone and digit switch settings (NT8D17)

Switch settings on the NT8D17 Conference and TDS pack allow selection of a fixed attenuation pad level. To meet UK regulatory requirements, it must be set to 3dB.

Table 34
Conference, tone and digit switch settings (NT8D17)

Switch setting SW2			
Attenuation level	**1**	**2**	**3**
10.2 dB	ON	ON	ON
8.5 dB	ON	OFF	ON
6 dB	OFF	ON	ON
6 dB	OFF	OFF	ON
4.5 dB	ON	ON	OFF
3 dB	ON	OFF	OFF
0 dB	OFF	ON	OFF
0 dB	OFF	OFF	OFF

Note: Switch position 4 must always be set to ON to disable a permanent conference warning tone option.

PRI switch settings (NT8D72)

ISDN PRI: Installation (553-2901-201) provides full details for PRI switch settings.

Dual PRI switch settings (NTCK43)

ISDN PRI: Installation (553-2901-201) provides full details for Dual PRI switch settings.

Installing a new system

Contents

This section contains information on the following topics:

UK installation procedures 119
Preparing equipment for installation 119
Planning and designating the Krone TJF 121
Installing dc power 134
Grounding the system 153
Installing PFTUs 157
Connecting trunks and telephones to the PFTU 161

Reference list

The following are the references in this section:

- *Installation Planning* (553-3001-120)
- *Power Engineering* (553-3001-152)
- *System Installation Procedures* (553-3001-210)
- *Circuit Card: Installation and Testing* (553-3001-211)
- *Telephone and Attendant Console: Installation* (553-3001-215)
- *Option 11C Mini Planning and Installation* (553-3021-209)
- *Option 11C Planning and Installation* (553-3021-210)

Follow the steps in this chapter to install the new Meridian 1 system. References are made to the relevant sections in *System Installation Procedures* (553-3001-210). If a different procedure is required for the UK, a reference is made to "UK installation procedures" on page 119.

Note: This chapter describes the installation procedures for Meridian 1 large systems. For information pertaining to the installation of the Option 11C, refer to *Option 11C Planning and Installation* (553-3021-210). For information pertaining to the installation of the Option 11C Mini, refer to the *Option 11C Mini Planning and Installation* (553-3021-209).

Table 35
Initial system installation — list of tasks in subsections

Task	Go to
Prepare equipment for installation	"Preparing equipment for installation" on page 119
Place the fourth module on a column	*System Installation Procedures* (553-3001-210)
Position and level equipment	*System Installation Procedures* (553-3001-210)
Install overhead cable tray kits	*System Installation Procedures* (553-3001-210)
Plan and designate the MDF	"Planning and designating the Krone TJF" on page 121
Install dc power equipment and ground wiring	"Installing dc power" on page 134 and "Grounding the system" on page 153
Install PFTUs	"Installing PFTUs" on page 157
Configure the system monitor	*System Installation Procedures* (553-3001-210)
Install a system terminal and SDI port	*System Installation Procedures* (553-3001-210)
Cable common equipment	*System Installation Procedures* (553-3001-210)
Cable network loops	*System Installation Procedures* (553-3001-210)
Cable lines and trunks	*System Installation Procedures* (553-3001-210) *and* "Connecting trunks and telephones to the PFTU" on page 161
Power-up the system and load system software	*System Installation Procedures* (553-3001-210)
Perform acceptance tests	*System Installation Procedures* (553-3001-210)

UK installation procedures

This section contains hardware installation procedures that are specific to the UK. These procedures must be followed in conjunction with the instructions found in *System Installation Procedures* (553-3001-210).

Preparing equipment for installation

Use the equipment room floor plan to position equipment. See *Installation Planning* (553-3001-120) to prepare the equipment room and floor plan.

WARNING
A fully loaded column weighs 274.4 kg (605 lbs.). More than one person is required to remove equipment from shipping pallets.

Procedure 1
Preparing equipment for installation

1 Remove equipment from the shipping pallets; follow the unpacking instructions that come with the packaging material.

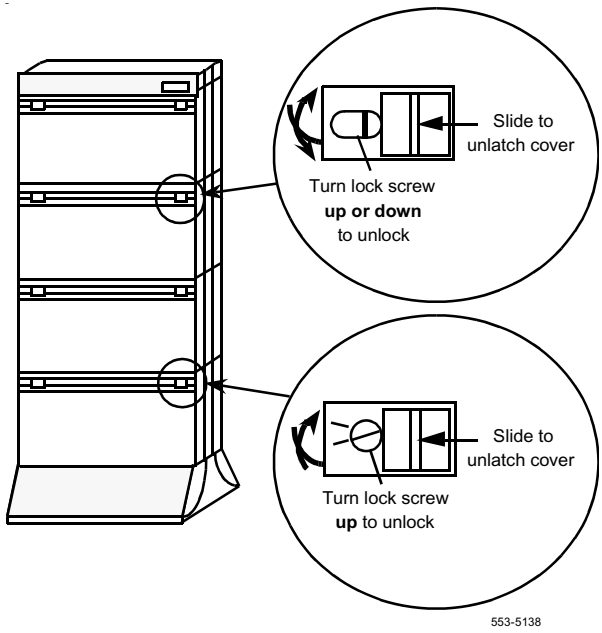
2 Remove the front and rear covers from each module:

a. Turn the two locking latches with a flat blade screwdriver. See Figure 5 on page 120.

b. Push the latches toward the center of the cover and pull the cover towards you while lifting it away from the module.

c. Set the covers aside until the installation is complete

Figure 5
Locking latches on the module cove.

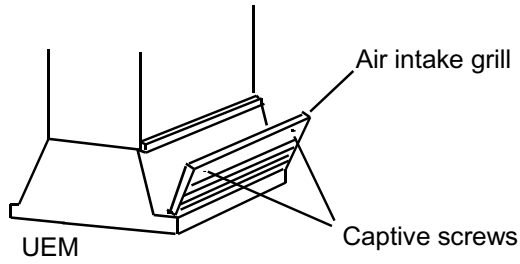


CAUTION
Damage to Equipment

Module covers are *not* hinged; do not let go of the cover. Lift the cover away from the module and set it out of the work area.

3 Remove the front and rear grills from each pedestal. See Figure 6 on page 121. Set the grills aside until the installation is complete.

Figure 6
Pedestal grill



Note: The front and rear air intake grills are secured by captive panel screws located in the face of the grill. Use a slotted screwdriver to release or secure the grill.

4 Make sure all the items on the system order form are on the packing slip that comes with the equipment.

5 Inspect all equipment for physical damage. Report any damage to the supplier.

6 Remove the foam pieces that secure the Bus Terminating Units (BTUs). Follow instructions on the red warning tags in the modules with BTUs.

7 Check the option settings on all cards that have a switch symbol on the faceplate. See *Circuit Card: Installation and Testing* (553-3001-211) for all switch and jumper settings.

Planning and designating the Krone TJF

Meridian 1 systems in the UK are terminated on the Krone cross-connect system. The Krone equipment chosen will vary to meet the requirements of the site.

Note: Krone equipment cannot be ordered from Nortel Networks.

Krone description

The Krone Test Jack Frame provides terminating strips that hold 10 pairs of cable. Generally, only 8 of the 10 pairs on a strip are used. One 25-pair cable, therefore, requires three terminating strips:

8 pairs per strip X 3 strips = 24 pairs

Figure 7 on page 123 shows how one 25-pair cable is divided among three terminating strips on the Krone Test Jack Frame.

Figure 7
25-pair cable on three Krone strips

Pair	Pin number	Wire Colour	Krone strip
1T	26	W-BL	1
1R	1	BL-W	
2T	27	W-O	
2R	2	O-W	
3T	28	W-G	
3R	3	G-W	
4T	29	W-BR	
4R	4	BR-W	
5T	30	W-S	
5R	5	S-W	
6T	31	R-BL	
6R	6	BL-R	
7T	32	R-O	
7R	7	O-R	
8T	33	R-G	
8R	8	G-R	
9T	34	R-BR	2
9R	9	BR-R	
10T	35	R-S	
10R	10	S-R	
11T	36	BK-BL	
11R	11	BL-BK	
12T	37	BK-O	
12R	12	O-BK	
13T	38	BK-G	
13R	13	G-BK	
14T	39	BK-BR	
14R	14	BR-BK	
15T	40	BK-S	
15R	15	S-BK	
16T	41	Y-BL	
16R	16	BL-Y	
17T	42	Y-O	3
17R	17	O-Y	
18T	43	Y-G	
18R	18	G-Y	
19T	44	Y-BR	
19R	19	BR-Y	
20T	45	Y-S	
20R	20	S-Y	
21T	46	V-BL	
21R	21	BL-V	
22T	47	V-O	
22R	22	O-V	
23T	48	V-G	
23R	23	G-V	
24T	49	V-BR	
24R	24	BR-V	
25T	50	V-S	
25R	25	S-V	

Krone installation and designation

Follow the steps below to install the Krone Test Jack Frame.

Procedure 1
Install the Krone Test Jack Frame

1 Choose a suitable location for the Test Jack Frame.

Only authorized personnel can have access to the Test Jack Frame. It must be installed in a locked room or an environment that prevents free access to the equipment. Test Jack Frames that do not meet this safety requirement will not receive approval.

2 Install the Krone equipment according to the instructions provided by the manufacturer.

3 Determine where each card will be terminated on the Krone Test Jack Frame.

Figure 8 on page 125 and Figure 9 on page 126 provide IPE and CE/PE module card allocations for the Krone Test Jack Frame.

Figure 8
IPE module card allocation – Krone cross connect system

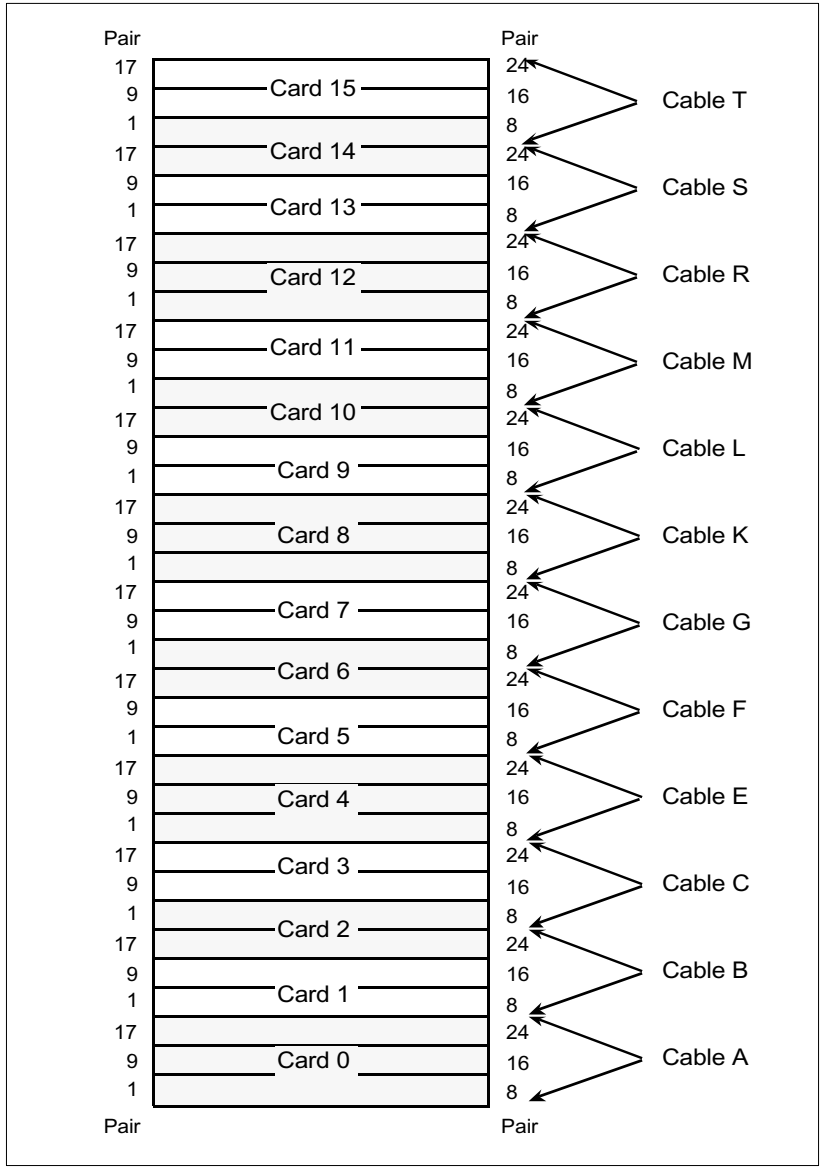
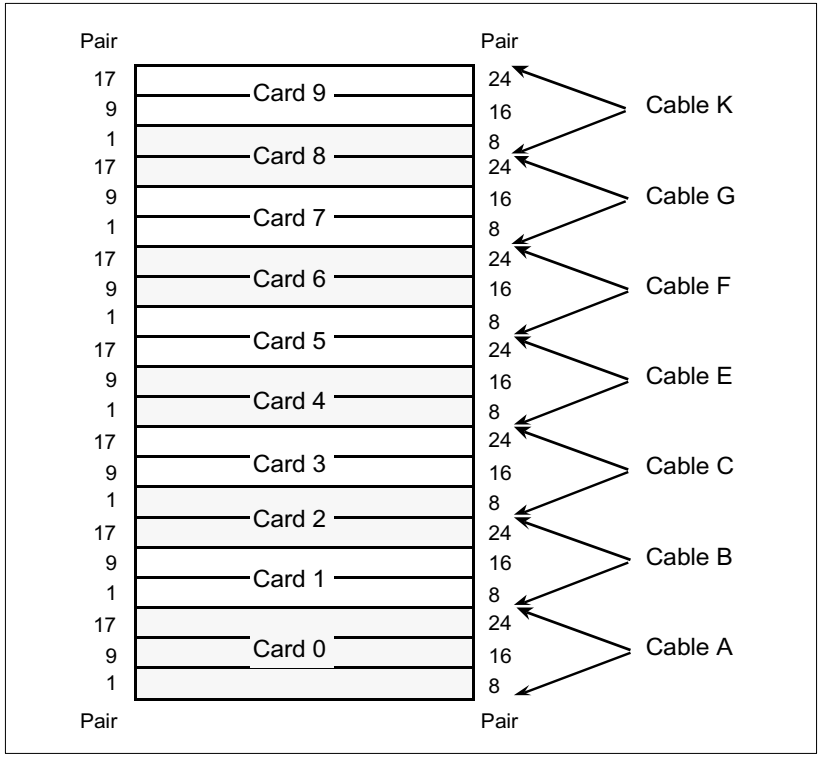


Figure 9
CE/PE module card allocation – Krone cross connect system



4 Attach labels to the Krone designation strips.

The labels that attach to the terminating strips have two sides: the front side shows the name of the card and the card number, the reverse side (flip-up side) shows pair designations for that card.

There are two types of mandatory labels: those with safety warnings and those without.

Mandatory labels with safety warnings are required for the following cards:

- NT5K02 Analog line card

- NT5K19 Analog TIE trunk card
- QUA6 Power Fail Transfer Unit (PFTU)

Labels are mandatory for the following cards but they do not need safety warnings:

- NT5K18 Exchange line card
- NT5K17 Direct Dial Inwards (DDI) card

Figures 10 through 16 show labels for the Krone cross connect system.

Figure 10
Label for Analog line card

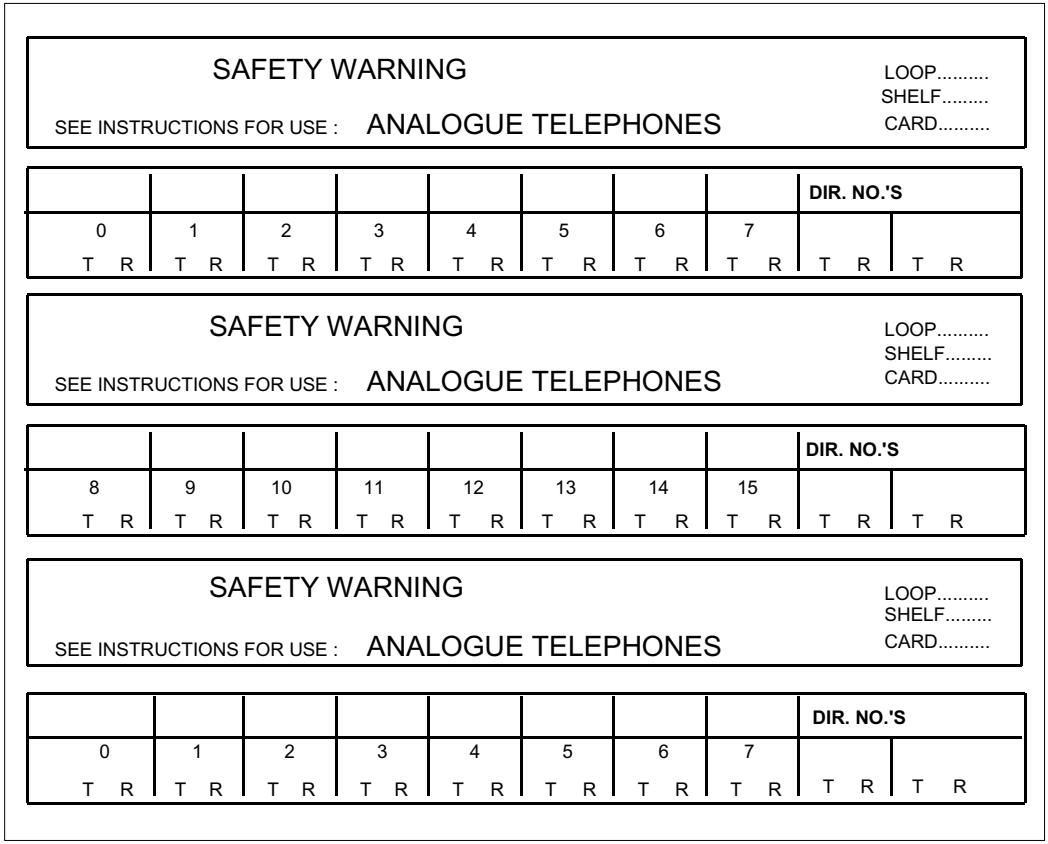

SAFETY WARNING
SEE INSTRUCTIONS FOR USE : ANALOGUE TELEPHONES
LOOP.....
SHELF.....
CARD.....
DIR. NO.'S
0 1 2 3 4 5 6 7
T R T R T R T R T R T R T R T R T R T R
SAFETY WARNING
SEE INSTRUCTIONS FOR USE : ANALOGUE TELEPHONES
LOOP.....
SHELF.....
CARD.....
DIR. NO.'S
8 9 10 11 12 13 14 15
T R T R T R T R T R T R T R T R T R T R
SAFETY WARNING
SEE INSTRUCTIONS FOR USE : ANALOGUE TELEPHONES
LOOP.....
SHELF.....
CARD.....
DIR. NO.'S
0 1 2 3 4 5 6 7
T R T R T R T R T R T R T R T R T R T R

Figure 11
Label for Analog TIE trunk card

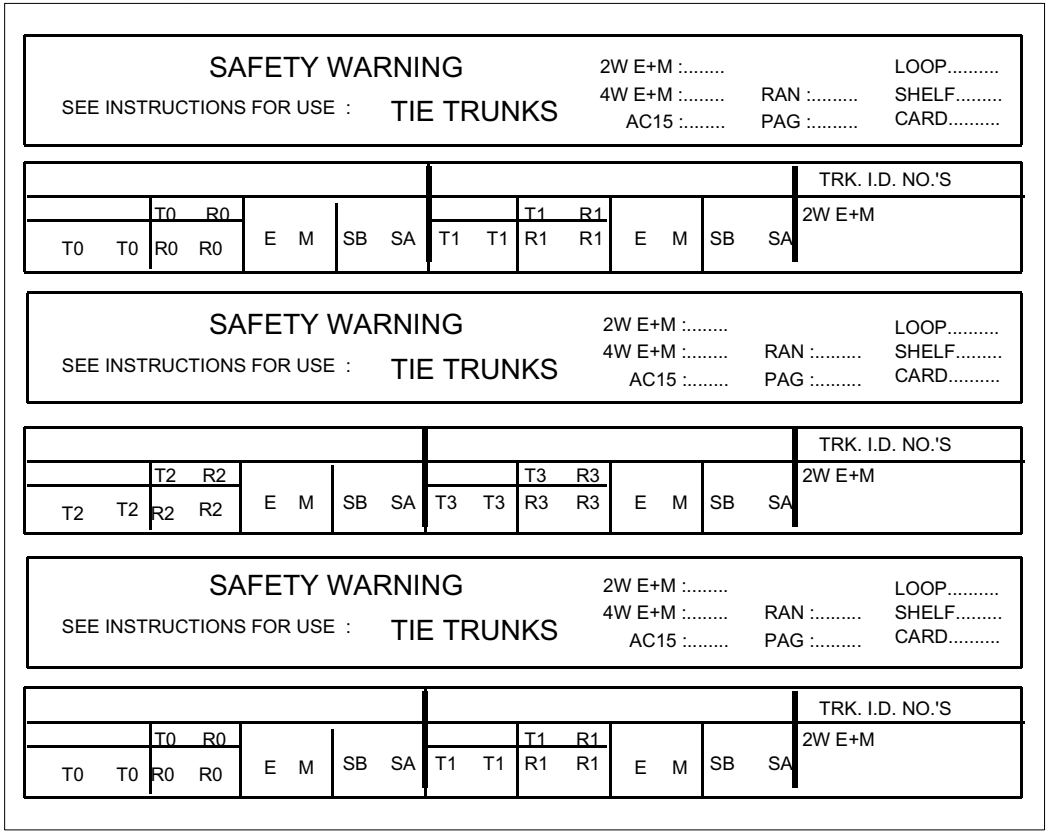


Figure 12
Label for Data Access line card (NT7D16)

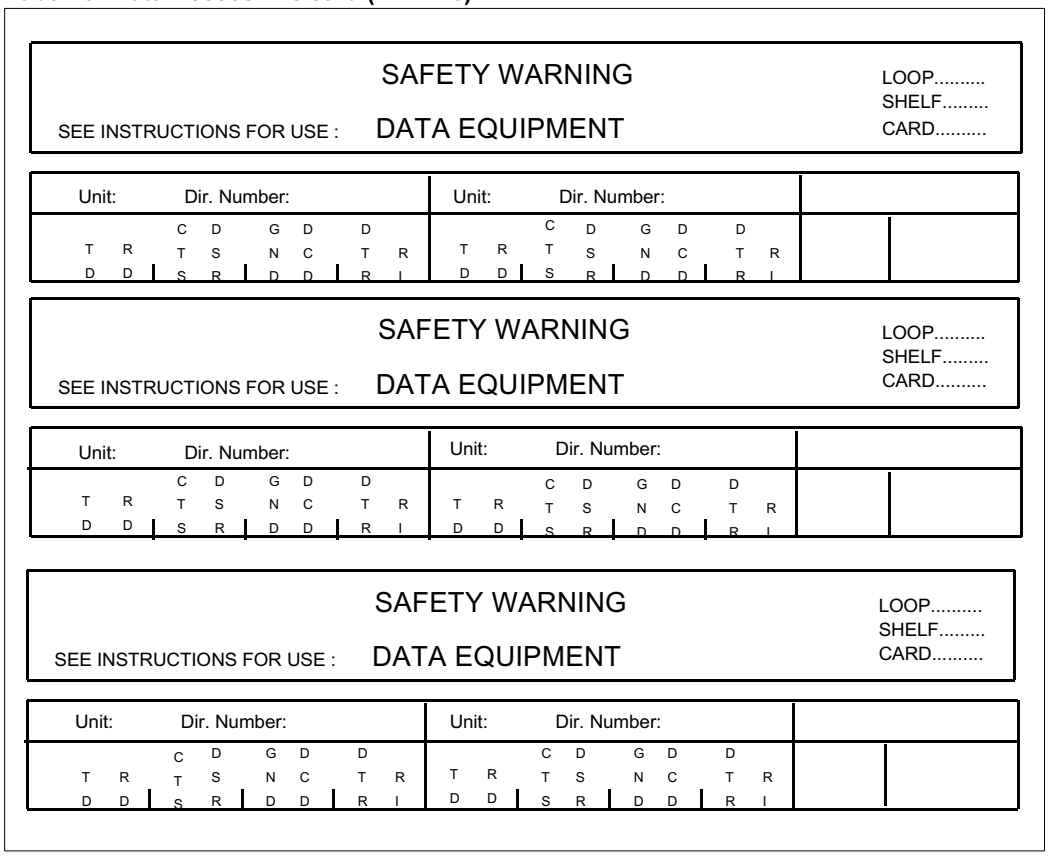


Figure 13
Label for Power Fail Transfer Unit

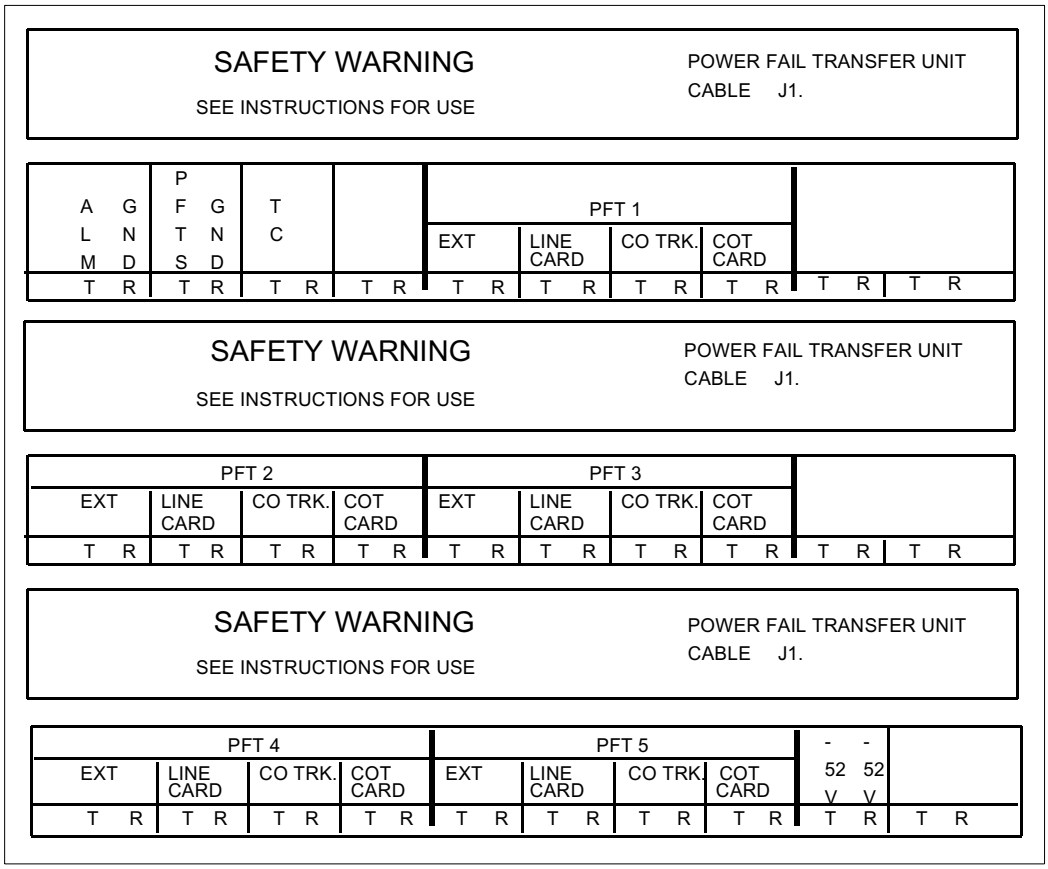


Figure 14
Label for Digital line card (NT8D02)

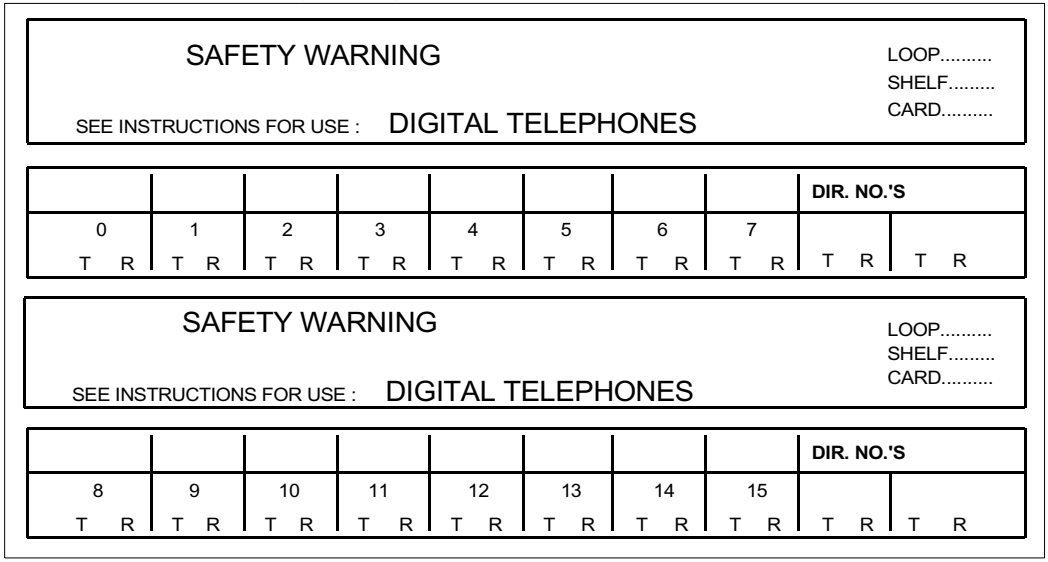

SAFETY WARNING
LOOP.....
SHELF.....
CARD.....
SEE INSTRUCTIONS FOR USE : DIGITAL TELEPHONES
DIR. NO.'S
0 1 2 3 4 5 6 7
T R T R T R T R T R T R T R T R T R T R
SAFETY WARNING
LOOP.....
SHELF.....
CARD.....
SEE INSTRUCTIONS FOR USE : DIGITAL TELEPHONES
DIR. NO.'S
8 9 10 11 12 13 14 15
T R T R T R T R T R T R T R T R T R T R

Figure 15
Label for Exchange line trunk card (NT5K18)

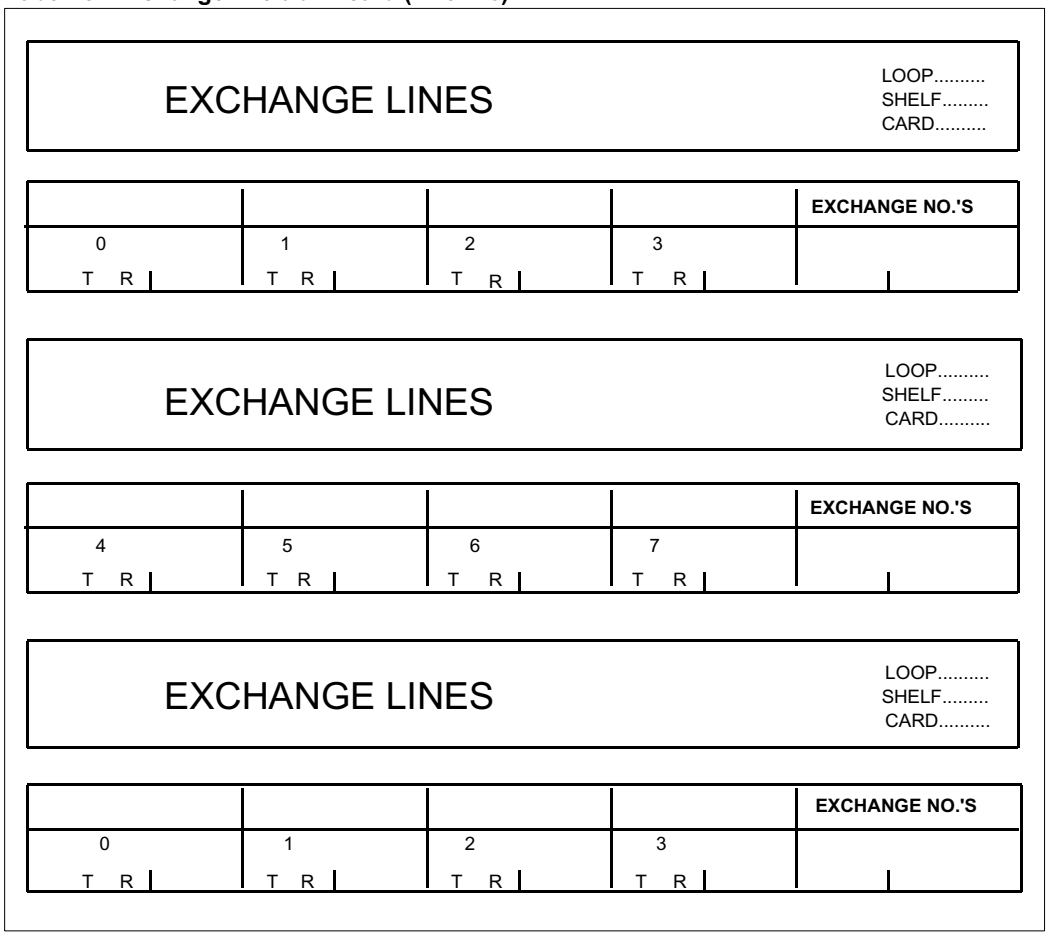
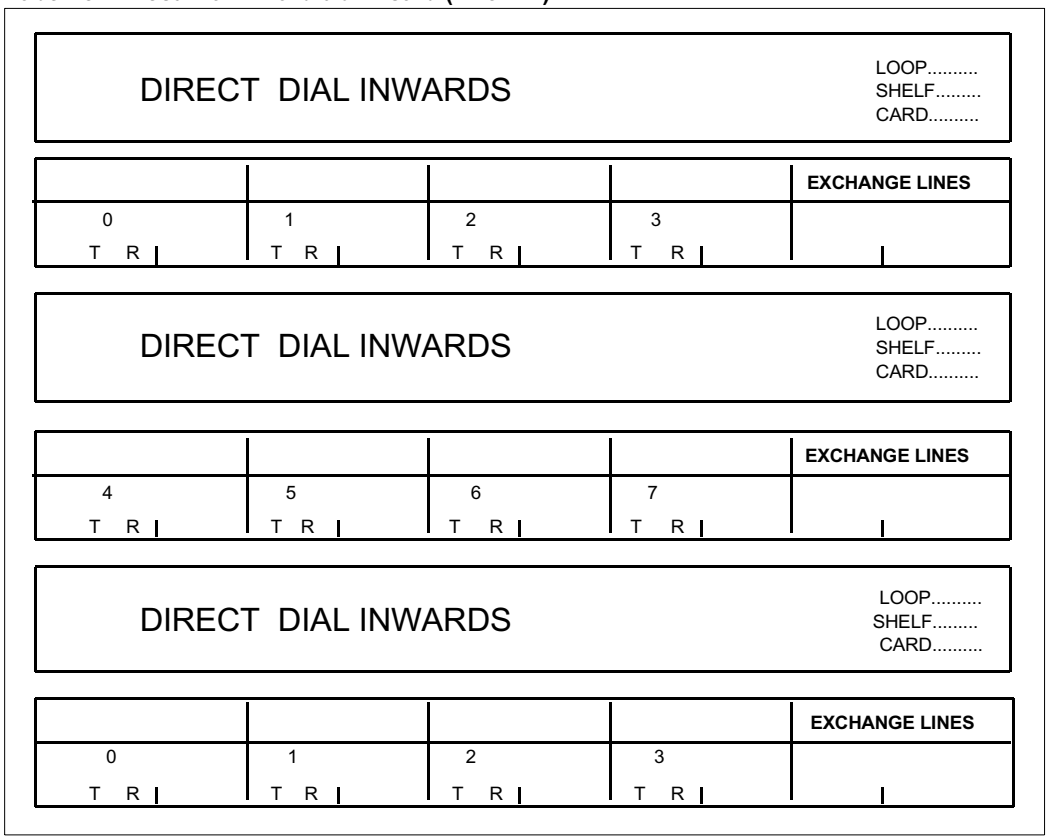


Figure 16
Label for Direct Dial Inward trunk card (NT5K17)



Installing dc power

This procedure provides instructions for installing both the NT7D67CA Power Distribution Unit (PDU) and the NT7D10 PDU. The NT7D67CA PDU replaces the NT7D10 PDU.

External dc power equipment

Meridian 1 systems in the UK operate in dc power only (nominal -48 V dc). Modules in a column are fed dc power from the Power Distribution Unit (PDU) in the Pedestal. The Pedestal is powered from an external dc power plant.

DC-powered systems generally require one input receptacle per rectifier, within 1.8 m (6 ft) of each rectifier. The commercial power receptacles required are determined by the number and type of rectifiers used.

> ***Note:*** With the NT7D10 PDU, a junction box is sometimes required. The junction box may be used with the NT7D67CA PDU, but it is not required.

Power system

The power system used in the UK is an integrated power plant that includes 240V ac/54V dc rectification, grounding components, and reserve power with distribution.

Each power system is comprised of at least one master cabinet 8B/2R and up to a maximum of three slave cabinets. Additional master cabinets can be added to the system.

Table 36
Power system equipment

NT part no.	C&C part no.	Description
NPS 51095-01L2	8B/2R	Master cabinet with two rectifier slots and housing for two battery sets
NPS 51095-01L3	8B/4R	Master cabinet with four rectifier slots and housing for one battery set
NPS 51095-01L1	8B/S	Slave cabinet with two rectifier slots and housing for two battery sets
NPS 51095-04L2	–	28 Amp rectifier
NPS 51095-05L1	–	38 Amp rectifier
NPS 51095-06L1	–	Battery cell (8 cells per battery)
NPS50513-02L1	8B/L235	Battery connector

8B/2R master power system

The 8B/2R power system has a capacity of two rectifiers, two batteries and dc distribution breakers. The cabinet is pre-wired for the maximum number of rectifiers and batteries. The customer, however, will only receive the number of rectifiers and batteries needed to meet the specified load and stand-by period.

8B/4R master power system

The 8B/4R power system has a capacity of four rectifiers, one battery and dc distribution breakers. The cabinet is pre-wired for the maximum number of rectifiers and batteries. The customer, however, will only receive the number of rectifiers and batteries needed to meet the specified load and stand-by period.

8B/S slave power system

This cabinet is used as a slave to either an 8B/2R or 8B/4R master power cabinet. This unit does not have distribution circuits or power alarms in the cabinet, these features are provided in the master system. Several slave cabinets can be connected in parallel behind a master cabinet.

NT6D53 Junction Box

If a rectifier is positioned at a distance from the Meridian 1, the NT6D53 Junction Box provides an interim connection between the rectifier and the field wiring terminal block in the pedestal. One junction box is required for each column.

The junction box is equipped with a 3.5 m (10 ft) flexible conduit which contains all the wiring needed to connect the rectifier to the pedestal. Make sure the junction box is installed close enough to the pedestal for the conduit to reach the terminal block in the pedestal.

On the input side, the junction box has allowance for up to four 25 mm^2 pairs and logic returns, and up to two 1-1/4 in. conduit fittings (one fitting is supplied). On the output side, the junction box is pre-wired with four 6 mm^2 pairs (one pair per module) and a logic return. This wiring is routed in a 3 m (10 ft) length of 3/4-in. conduit that connects to the pedestal.

For distances of up to 61 m (200 ft), the junction box connects to the pedestal as follows:

- Up to 30.5 m (100 ft) there are:
  - four split feeds per column with nine 6 mm^2 conductors in a single 3/4-in. conduit
  - two 30-amp feeds from the distribution point to the junction box with five 25 mm^2 conductors in a single 1-14 in. conduit

- Up to 61 m (200 ft) there are:
- four split feeds per column with nine 6 mm^2 conductors in a single 3/4-in. conduit
- two 30-amp feeds from the distribution point to the junction box, with nine 25 mm^2 conductors in two 1-14 in. conduits

Pedestal connections – NT7D67CA PDU

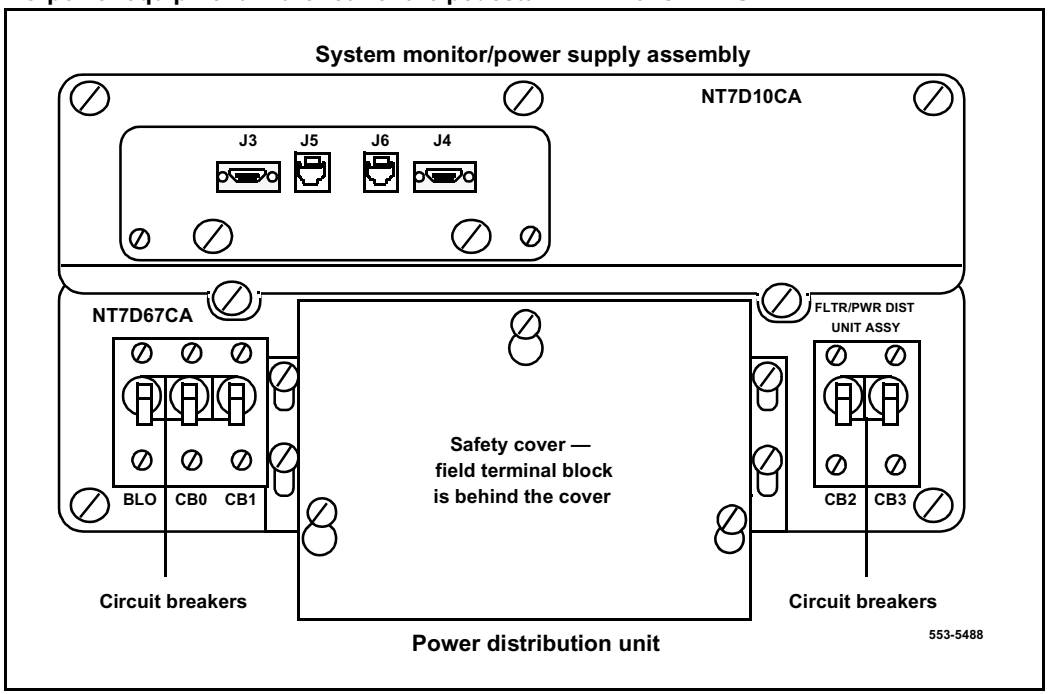
The following equipment is located in the rear of each pedestal in Meridian 1 columns. See Figure 17 on page 138

- The PDU distributes power to the entire column.
- The field wiring terminal provides the connection point for wiring brought into the pedestal.
- A circuit breaker is provided for each module in the column and for the blower unit

  Note: All column circuit breakers will trip if a column thermal overload is detected or a dc-power low-voltage condition is sensed.

- The system monitor checks the column temperature, cooling system status, and system voltage status, and controls alarms and line transfer states accordingly.

Figure 17
DC-power equipment in the rear of the pedestal – NT7D67CA PDU

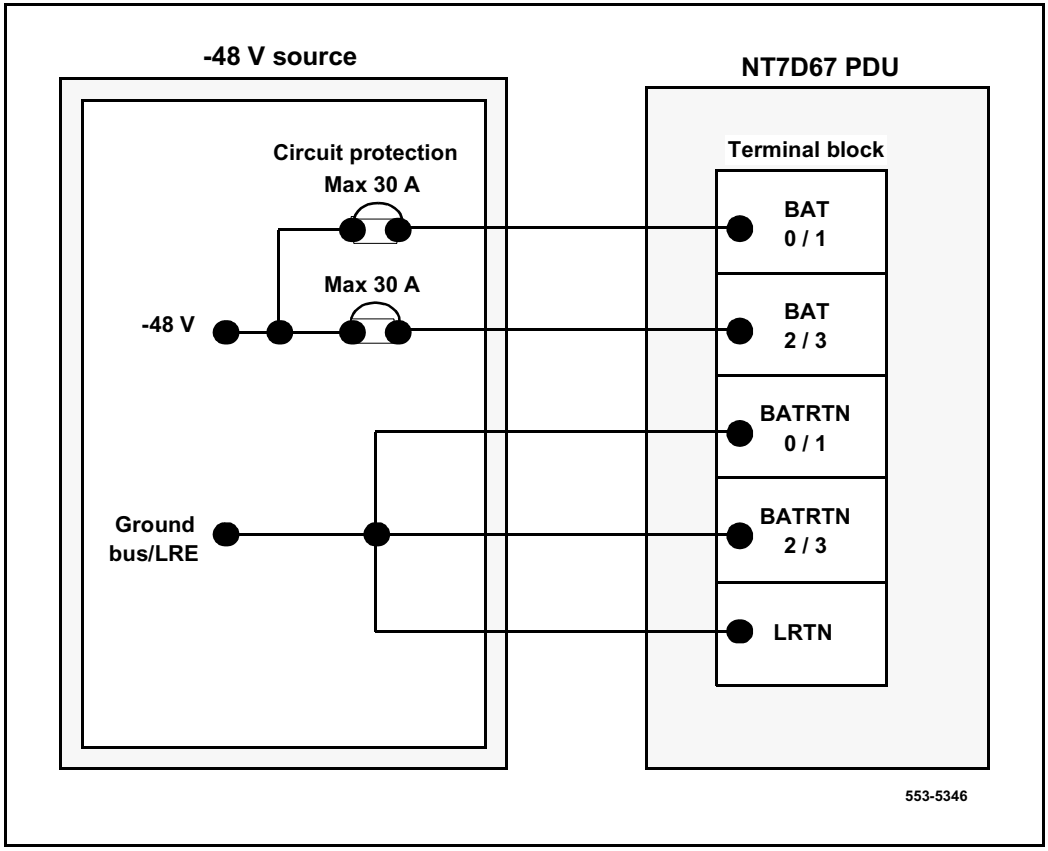


A readily accessible disconnect device for input power is required.

DANGER OF ELECTRIC SHOCK
DC power for the NT7D09 pedestal must be provided with circuit protection of 30 amps for BAT0/BAT1 feeds and for BAT2/BAT3 feeds. See Figure 18 on page 139.

Circuit breakers must be located next to each other and labeled to show that both must be shut off to remove all power to the system.

Figure 18
DC power for pedestal



A maximum loop drop of two volts is allowed between the pedestal, or junction box, and the external power equipment. See Table 37 for allowable wire sizes. See *Power Engineering* (553-3001-152) for detailed information on calculating wire size.

Table 37
Pedestal wire gauge requirements with two 30-amp feeds (five wires)

Length	10 mm^2	16 mm^2	Single 25 mm^2	Double 25 mm^2
0 – 3 m (10 ft)	Yes	Yes	Yes	Yes
0 – 6 m (20 ft)	Yes	Yes	Yes	Yes

0 – 9 m (30 ft)	Yes	Yes	Yes	Yes
0 – 12 m (40 ft)	Yes	Yes	Yes	Yes
0 – 15 m (50 ft)	Yes	Yes	Yes	Yes
0 – 18 m (60 ft)	No	Yes	Yes	Yes
0 – 21 m (70 ft)	No	Yes	Yes	Yes
0 – 24 m (80 ft)	No	Yes	Yes	Yes
0 – 27 m (90 ft)	No	No	Yes	Yes
0 – 30 m (100 ft)	No	No	Yes	Yes
0 – 60 m (200 ft)	No	No	No	Yes
over 60 m (200 ft)	No	No	No	No

Note 1: Two 30-amp feeds are typically adequate for a column with four modules (five wires total – two 30-amp feed pairs plus logic return).

Note 2: If dual conduit is used, the wires must be run in battery/battery return pairs, with one pair in one conduit and the other pair, plus logic return, in the other conduit.

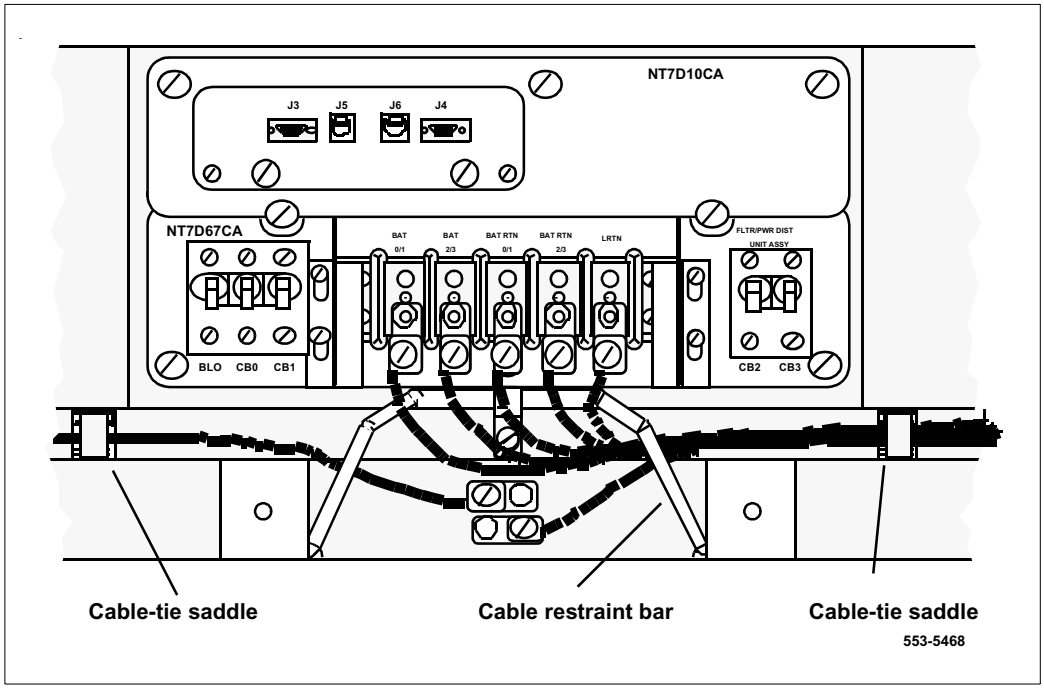
Legend: Yes = Wire size is adequate for the distance.
No = Wire size has too high a voltage drop and is inadequate for the distance.

NT7D67CA Cable routing

The safety ground/protective earth wire and all wiring to the terminal block in the PDU must be routed within the cable-tie saddles and under the cable restraint bar at the base of the pedestal. See Figure 19.

Conduit is not necessary with the NT6D67 PDU. However, 1-1/4 or 3/4 inch conduit may be used if local codes or individual installations require it. Conduit may be routed down through the column from overhead racks or up through the floor. Conduit clamps and the hardware to fasten the conduit are provided in the pedestal. If the NT7D0902 Rear Mount Conduit Kit is used, conduit can enter from the rear of the system (above the floor).

Figure 19
Cable routing in the rear of the pedestal – NT7D67CA PDU



Preparing the NT7D67CA PDU for installation

When a system is shipped, a set of screws secures the leveling bracket at the rear of the NT7D67CA PDU to protect against vibration during transit. The shipping screws should be removed during initial installation.

Procedure 1
Remove shipping screws

1 For access to the rear of the PDU, temporarily remove the blower unit in the front of the pedestal:

a. Remove the grill on the front of the pedestal. Set the toggle switch on the front of the unit to OFF (left).

b. Turn the screws on the front of the unit counter-clockwise.

c. Grasp the lip at the top edge of the blower unit. Slide the unit out of the glides and onto the bottom ledge of the pedestal. Lift the unit out of the pedestal. (Keep the blower unit in an upright position.)

d. Remove the two shipping screws holding the PDU to the vertical shield in the pedestal.

2 Reinstall the blower unit:

a. Set the blower unit on the bottom ledge of the pedestal.

b. Tilt the back of the blower unit up slightly so it will slide into the pedestal glides (the unit may need to be lifted). Gently push the unit into position.

c. Tighten the screws on the front of the unit.

d. Fit the grill into the holes in the bottom ledge of the pedestal. Push the grill back into a locked position.

Connecting power to the pedestal – NT7D67CA PDU

To connect the external power system to the pedestal, use the following procedure for each column. This procedure gives the connections for a four-module column.

Note: All wiring to the PDU must be routed within the cable-tie saddles and under the cable restraint bar at the base of the pedestal.

Procedure 2
Connect power to the pedestal

1 Open the front door of the 8B/2R or 8B/4R master power cabinet.

2 If a junction box is used, insert the conduit from the junction box into one of the conduit access holes in the pedestal.

Connect the wires from the junction box to the matching connections on the terminal block on the PDU:

a. Connect the blue wires BAT0 through BAT3.

b. Connect the black wires RTN0 through RTN3.

c. Connect the remaining LRTN wire (cream).

Note: If a junction box is used, the connections described in Steps 2 through 4 apply to the junction box rather than the pedestal.

3 Connect the blue BAT (-48V) wires:

a. At the 8B/2R or 8B/4R master power cabinet, connect wires to the first two terminals on the -ve distribution rail (See Figure 20).

b. At the PDU, connect the wires to the terminal block (one wire feeds two modules):

- for modules 0 and 1 connect to BAT 0/1
- for modules 2 and 3 connect to BAT 2/3

4 Connect the black BATRTN (+48V) wires:

a. At the 8B/2R or 8B/4R master power cabinet, connect wires to the +ve bus

b. At the PDU, connect the wires to the terminal block (one wire feeds two modules):

- for modules 0 and 1 connect to BATRTN 0/1
- for modules 2 and 3 connect to BATRTN 2/3

5 Connect a cream 10 mm^2 LRTN wire from the logic return equalizer (LRE) in the rear of the master power cabinet to LRTN on terminal block TB1 in the pedestal. See Figure 20 on page 144.

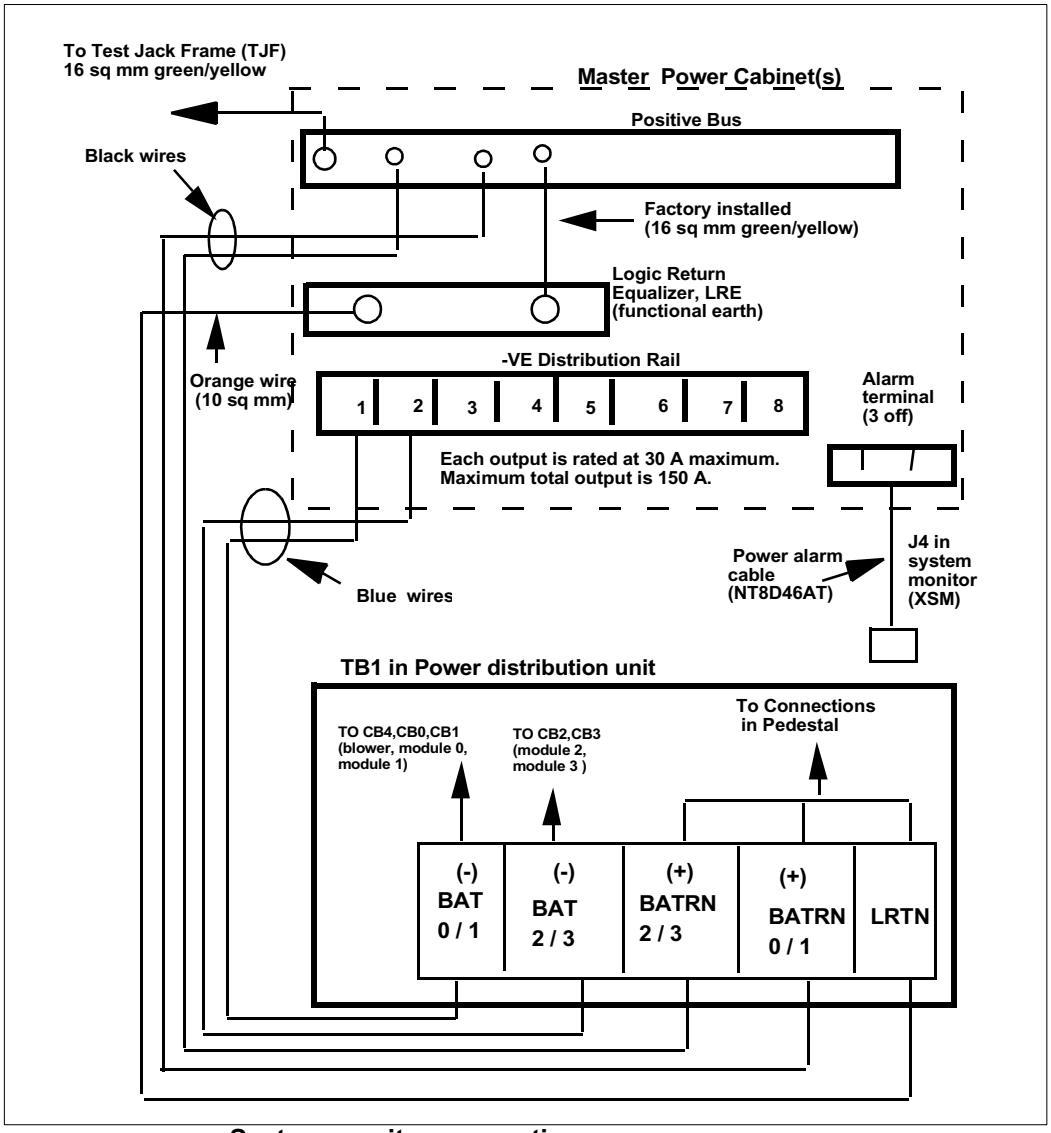
6 Reinstall the plastic safety cover over the terminal block:

a. Lower the front panel over the mounting screws on the PDU.

b. Tighten the three screws holding the cover.

7 Close the covers on the 8B/2R or 8B/4R master power cabinet.

Figure 20
UEM TO 8B/2R or 8B/4R master power cabinet 2R or 8B/4R master power cabinet connections



System monitor connections

When connecting to an 8B/2R or 8B/4R master power cabinet, one

NT8D46AT cable is required to extend the alarm terminal to the master system in the pedestal. See Figure 20 on page 144.

The orange colored wire on NT8D46AT marked “ALARM” extends from any of three alarm terminals on the top of the power cabinet to the connector marked J4 in the system monitor. The remaining “Trip” and “DC ON” wires on the NT8D46AT cable are not used and should be snipped before installing the cable.

Pedestal connections – NT7D10 PDU

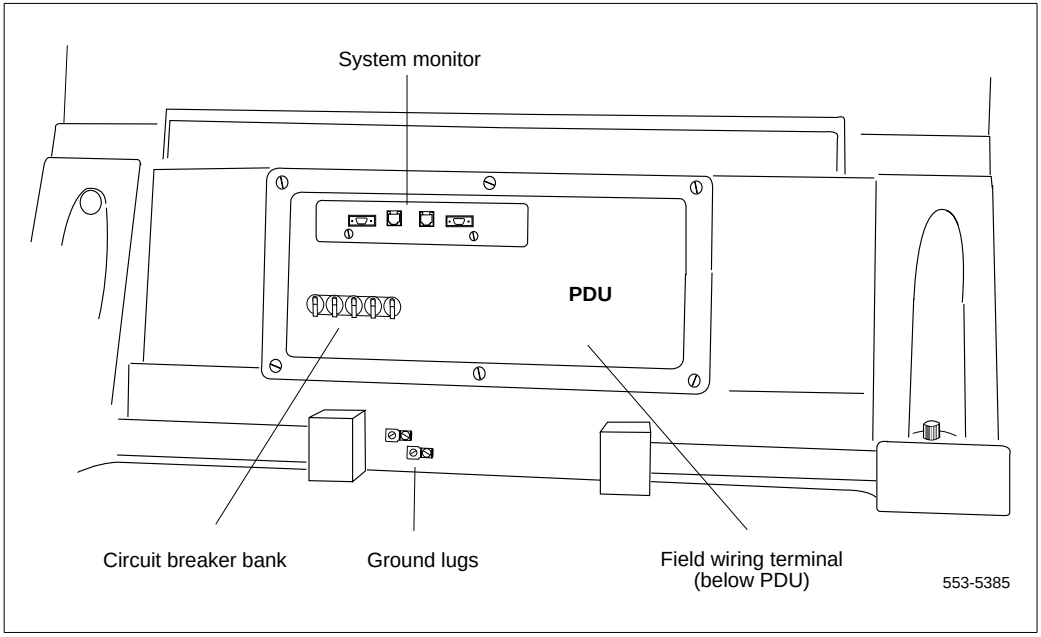
The following equipment is located within each pedestal in Meridian 1 columns. See Figure 21 on page 144.

- The PDU distributes power to the entire column.
- The field wiring terminal block (located beneath the PDU on the pedestal floor) provides the connection point for wiring brought into the pedestal.
- The circuit breaker bank contains five breakers. Four breakers protect the modules in the column; the fifth breaker provides a trip function for the blower unit.

  Note: All column circuit breakers will trip if a column thermal overload is detected or a dc-power low-voltage condition is sensed.

- The system monitor checks the column temperature, cooling system status, and system voltage status, and controls alarms and line transfer states accordingly.

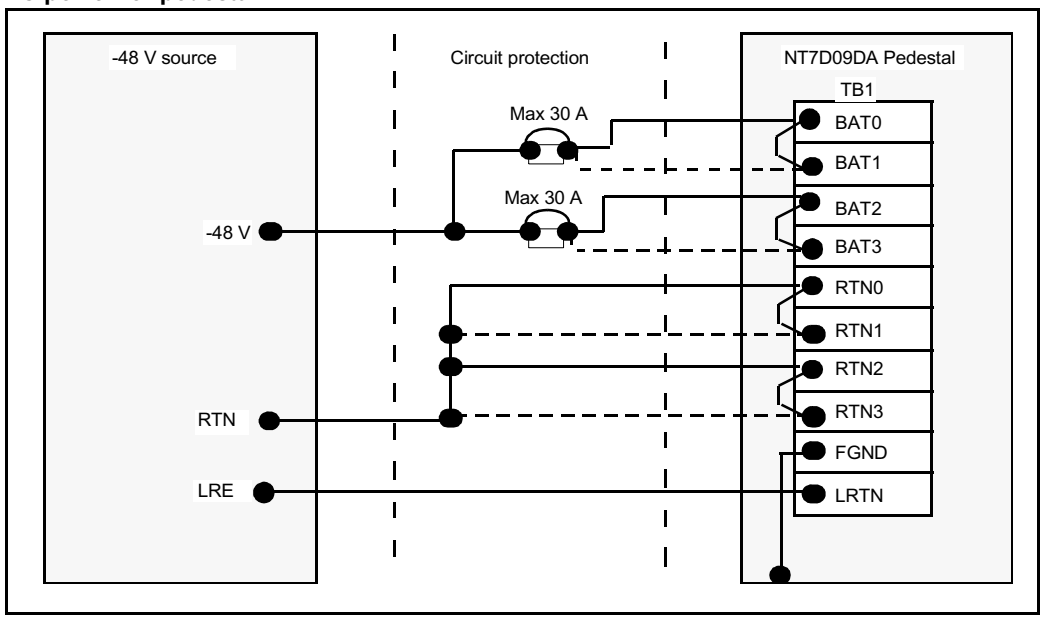
Figure 21
DC-power equipment in the rear of the pedestal



CAUTION
Damage to Equipment

DC power for the NT7D09 Pedestal must be provided with circuit protection of 30 amps or less for BAT0 and BAT1 feeds, and for BAT2 and BAT3 feeds. See Figure 22 on page 147.

Figure 22
DC power for pedestal



All wiring (except cables to the system monitor) from external power equipment to the pedestal must be run through flexible metallic conduit. Four holes in the pedestal allow 3/4-in. conduit to be routed through the side or bottom of the pedestal. A maximum of nine 6 mm^2 wires or five 10 mm^2 wires can be installed in the 3/4-in. conduit.

A maximum loop drop of two volts is allowed between the pedestal, or junction box, and the external power equipment. See Table 38 on page 148 for allowable wire sizes. See *Power Engineering* (553-3001-152) for detailed information on calculating wire size.

Table 38
Pedestal wire gauge requirements with two 30-amp feeds (five wires)

Length	10 mm^2	16 mm^2	Single 25 mm^2	Double 25 mm^2
0 – 3 m (10 ft)	Yes	Yes	Yes	Yes
0 – 6 m (20 ft)	Yes	Yes	Yes	Yes
0 – 9 m (30 ft)	Yes	Yes	Yes	Yes
0 – 12 m (40 ft)	Yes	Yes	Yes	Yes
0 – 15 m (50 ft)	Yes	Yes	Yes	Yes
0 – 18 m (60 ft)	No	Yes	Yes	Yes
0 – 21 m (70 ft)	No	Yes	Yes	Yes
0 – 24 m (80 ft)	No	Yes	Yes	Yes
0 – 27 m (90 ft)	No	No	Yes	Yes
0 – 30 m (100 ft)	No	No	Yes	Yes
0 – 60 m (200 ft)	No	No	No	Yes
over 60 m (200 ft)	No	No	No	No

Note 1: Two 30-amp feeds are typically adequate for a column with four modules (five wires total — two 30-amp feed pairs plus logic return).

Note 2: If dual conduit is used, the wires must be run in battery/battery return pairs, with one pair in one conduit and the other pair, plus logic return, in the other conduit.

Legend: Yes = Wire size is adequate for the distance.
No = Wire size has too high a voltage drop and is inadequate for the distance.

Connecting power to the pedestal – NT7D10 PDU

Use the following procedure for each column to connect the external power supply to the pedestal.

The –48V (BAT), +48V (RTN), and Logic Return (LRTN) wires must be installed in conduit, and must be installed in the same conduit.

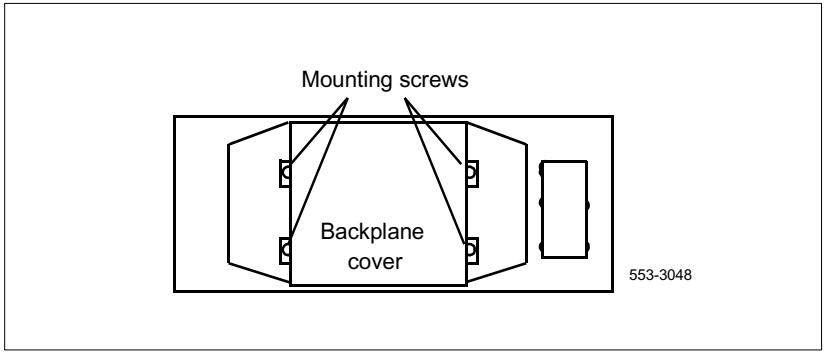
Procedure 1
Connect power to the pedestal

1 Open the front panel on the 8B/2R or 8B/4R master power cabinet.

2 Remove the PDU to access the field wiring terminal block (TB1) in the bottom of the pedestal:

a. Remove the backplane cover on the I/O assembly in module 0.

Figure 23
Backplane cover



b. From the PDU end, disconnect the power plug (J1) and system monitor ribbon cable between module 0 and the PDU.

Note: To disconnect the power plug, a latch trip must be pressed on the front and rear of the plug. A screwdriver blade may need to be used against the latch trip on the front of the plug.

c. If the module has an SDI paddle board installed on the backplane, temporarily remove it to avoid damage.

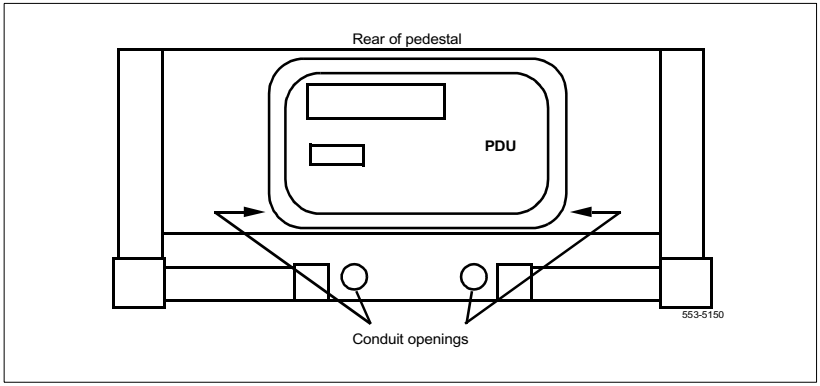
d. Disconnect cables to the system monitor faceplate.

e. Loosen the retaining screws that secure the PDU.

3 If required, install a junction box near the appropriate pedestal. Insert the conduit from the junction box into one of the conduit access holes in the pedestal.

Connect the wires from the junction box to the matching connections on TB1 in the pedestal:

Figure 24
Conduit openings



a. Connect the blue wires, BAT0 through BAT3.

b. Connect the black wires, RTN0 through RTN3.

c. Connect the remaining wire (which is usually cream in color), LRTN.

Note: If a junction box is used, the connections described in Steps 3 through 5 apply to the junction box rather than the pedestal.

4 Connect blue-BAT wiring from any of the terminals 1 to 8 on the –VE distribution rail of the master power cabinet to terminal block TB1 in the bottom of the pedestal. See Figure 25 on page 152.

Since one wire is used to feed –48 V to two UEMs (total of two blue wires for –BAT connections) connect as follows:

a. For UEM 0 and UEM 1, connect to –BAT0 and add a strap (if not already installed) between –BAT0 and –BAT1 in the pedestal or in the junction box if one is provided.

b. For UEM 2 and UEM 3, connect to –BAT2 and add a strap (if not already installed) between –BAT2 and –BAT3 in the pedestal or in the junction box if one is provided.

5 Connect the RTN wiring (black wires) from the +VE BUS in the master power cabinet to terminal block TB1 in the bottom of the pedestal. See Figure 25 on page 152.

Since one wire is used to feed +48 V to two UEMs (total of two black wires for +RTN connections) connect as follows:

a. For UEM 0 and UEM 1, connect to +RTN0 and add a strap (if not already installed) between +RTN0 and +RTN1 in the pedestal or in the junction box if one is provided.

b. For UEM 2 and UEM 3, connect to +RTN2 and add a strap (if not already installed) between +RTN2 and +RTN3 in the pedestal or in the junction box if one is provided.

6 Connect a cream 10 mm^2 LRTN wire from the logic return equalizer (LRE) in the rear of the master power cabinet to LRTN on terminal block TB1 in the pedestal. See Figure 25.

7 Reinstall the PDU:

a. Unseat the blower unit in the front of the pedestal. Set the switch on the front of the unit to OFF (down). Slide the unit out approximately 75 mm (3 in.).

b. Insert the PDU and secure it with its retaining screws.

c. Insert the blower unit until it is properly plugged into the PDU. Set the switch to ON.

d. Reconnect the system monitor and power cables from module 0 to the pedestal.

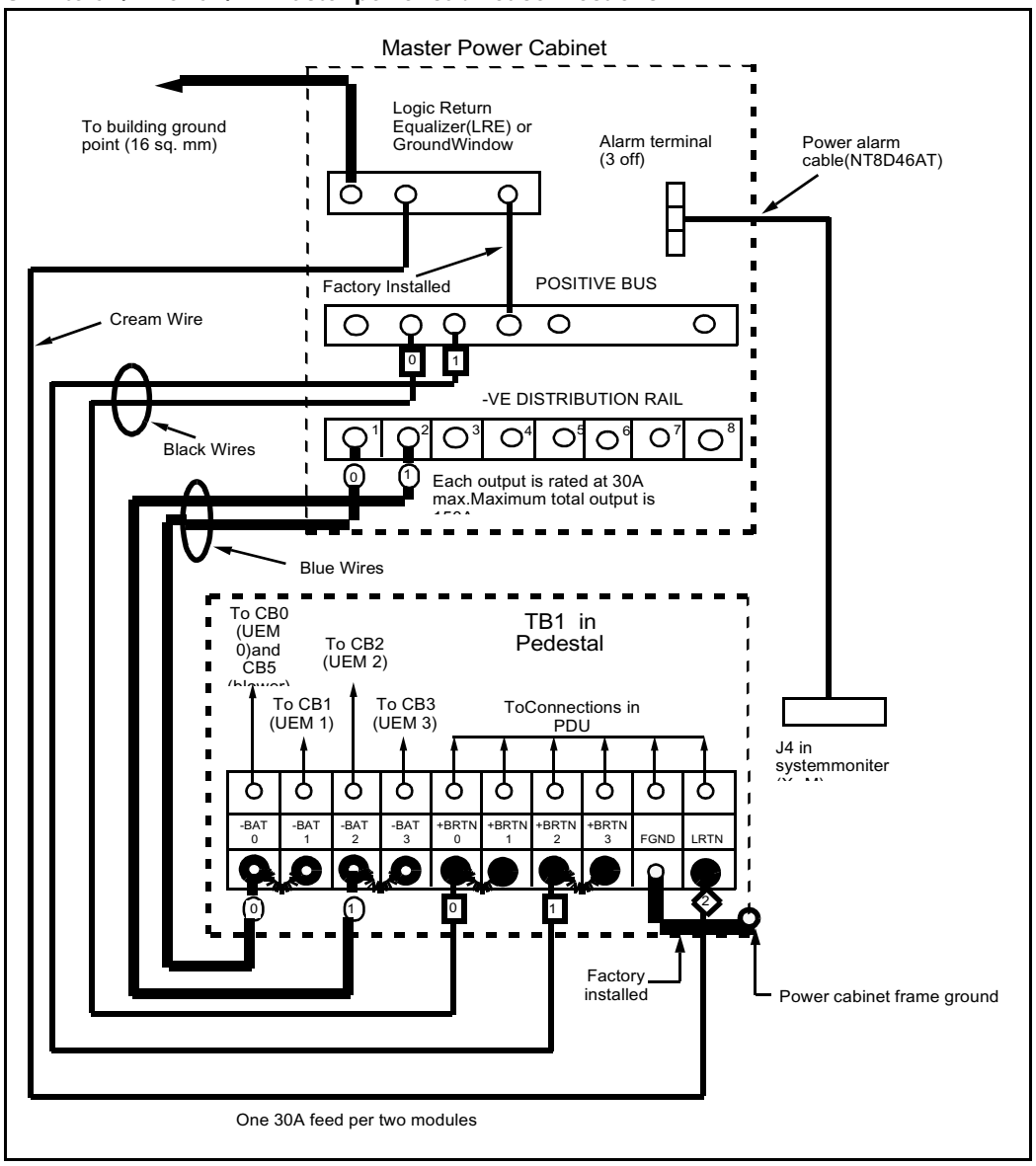
e. Reinstall the SDI paddle board on the backplane if it was removed.

f. Reinstall the backplane cover.

g. Reconnect any cables that were disconnected from the system monitor.

8 Replace the rear and top covers of the master power cabinet.

Figure 25
UEM to 8R/2R or 8B/4R master power cabinet connections



Grounding the system

WARNING
DANGER OF ELECTRIC SHOCK
System Failure

Failure to follow grounding procedures can result in an unsafe or faulty system. See *Installation Planning* (553-3001-120) for a complete description of approved ground sources and methods.

Test Jack Frame (TJF) single point ground

The single point ground for Meridian 1 systems in the UK is the Main Distribution Frame (MDF) ground bar at the building point. The TJF ground point should be connected to the main Building ground point by 35 mm green/yellow cable.

The following *must* be connected to the building ground point as shown in Figure 27 on page 156,and Figure 43 on page 166:

- The positive bus (LRE) located in each master cabinet. This connection is made by a 16 square mm green/yellow cable denoted by “BR/LR ref” in Figure 27 on page 156 and Figure 28 on page 156.
- The frame ground terminals of Meridian 1 systems.
- The frame ground terminals of all master and slave power cabinets.

The procedures that follow show how to ground the power cabinets and the Meridian 1.

Procedure 1
Ground the power cabinets

1 Connect a 16 mm^2 green/yellow cable from the frame ground of all power cabinets to the Test Jack Frame ground point.

A ground stud is provided on all power cabinets for this purpose.

2 Connect the ground terminal on the ac terminal block of all power cabinets to the earth point at the local consumer unit.

Note: The power cabinet ground terminal on the ac terminal block is not connected to the power cabinet frame ground.

3 Connect a 16 mm^2 green/yellow cable from the positive bus on the master cabinet to the Test Jack Frame ground point. If several cabinets are used, the positive bus of each master cabinet must be connected to the TJF ground point

A Logic Return Equalizing bus (LRE) or Functional Earth is fitted in each master power cabinet. Each LRE contains 36 terminal points to which logic return wires from Meridian 1 pedestals *must* be connected. The LRE is permanently connected (factory installed) by a 16 square mm green/yellow cable to the battery return (positive bus) of the master cabinet. The positive bus in turn connects to the TJF ground point.

The cable connecting the positive bus to the TJF is denoted by BR/LR in Figure 27 on page 156. Figure 28 on page 156 details the grounding arrangement for a Meridian 1 system powered by two master power cabinets with associated slave cabinets.

Procedure 2
Ground the pedestal

1 Remove the associated 30-amp fuse in the power plant to disconnect each pedestal from the power source.

2 This step applies only to NT7D67CA PDUs:

At the rear of the pedestal, remove the plastic safety cover over the terminal block to access the safety ground/protective earth lugs on the front of the pedestal (leave the cover off until all pedestal connections are made):

a. Loosen the three screws holding the cover.

b. Lift the cover up, then over the three mounting screws on the front panel of the cover.

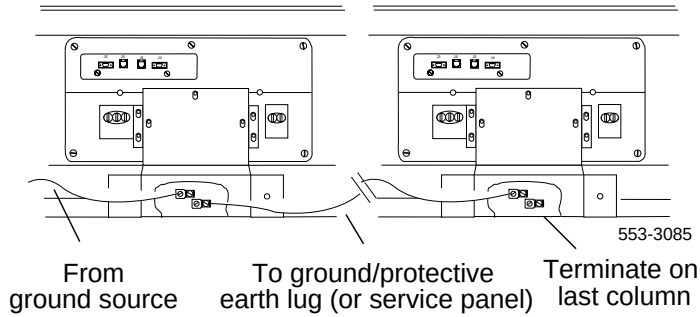
3 Connect the safety ground/protective earth wire:

Note: Insulated ground wire must be used for system grounding.

For a single-column system, connect a 16 mm^2 wire from the Test Jack Frame ground point to a ground lug on the pedestal.

For a multiple-column system, connect a 16 mm^2 wire from the Test Jack Frame ground point to a ground lug on the closest column. Daisy-chain the ground/protective earth lugs on all pedestals together (or run independently from each column to the service panel) with 16 mm^2 wire.

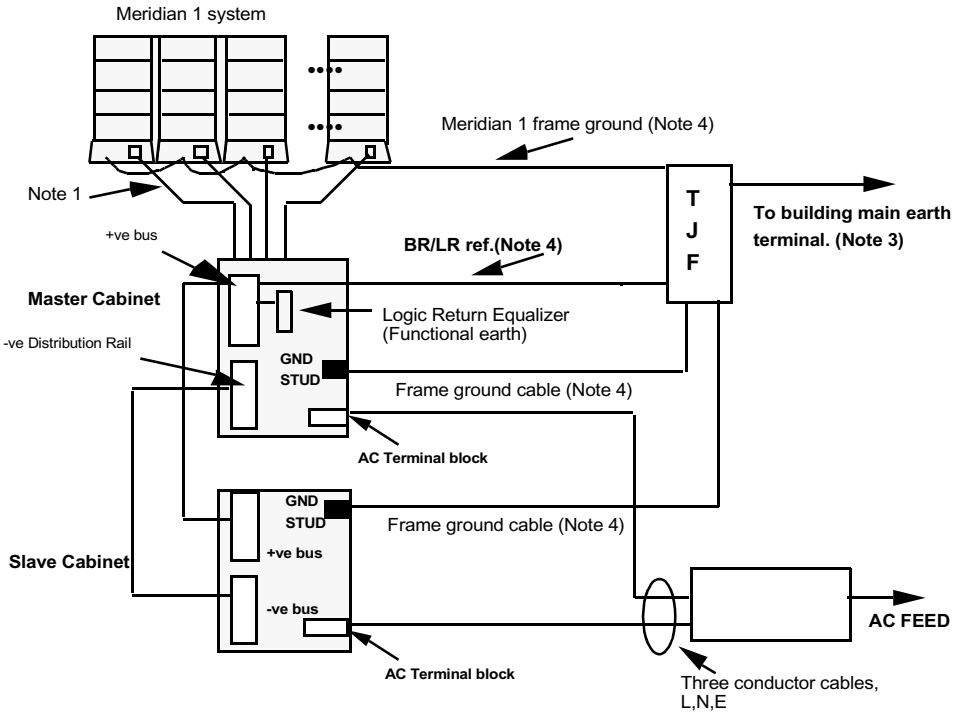
Figure 26
Grounding the pedestal



Note: The safety ground/protective earth wire must be routed within the cable-tie saddles and under the cable restraint bar at the base of the pedestal.

4 Place a warning tag (WARNING — TELEPHONE SYSTEM GROUND CONNECTION — DO NOT DISCONNECT) on the connection at the ground source.

Figure 27
Meridian 1 system grounding, one master and one slave cabinet



Note 1: This is 3 conductors (2 cube stack) or 5 conductors (3 or 4 cubes stack) enclosed in conduit. BR(+) goes to the positive bus, Logic return (functional earth,10 square mm) goes to the LRE. BAT(-) connects to the appropriate terminal on the negative distribution rail.

Note 2: All AC cables plus the BR/LR ref. wire *must* be enclosed in conduit.

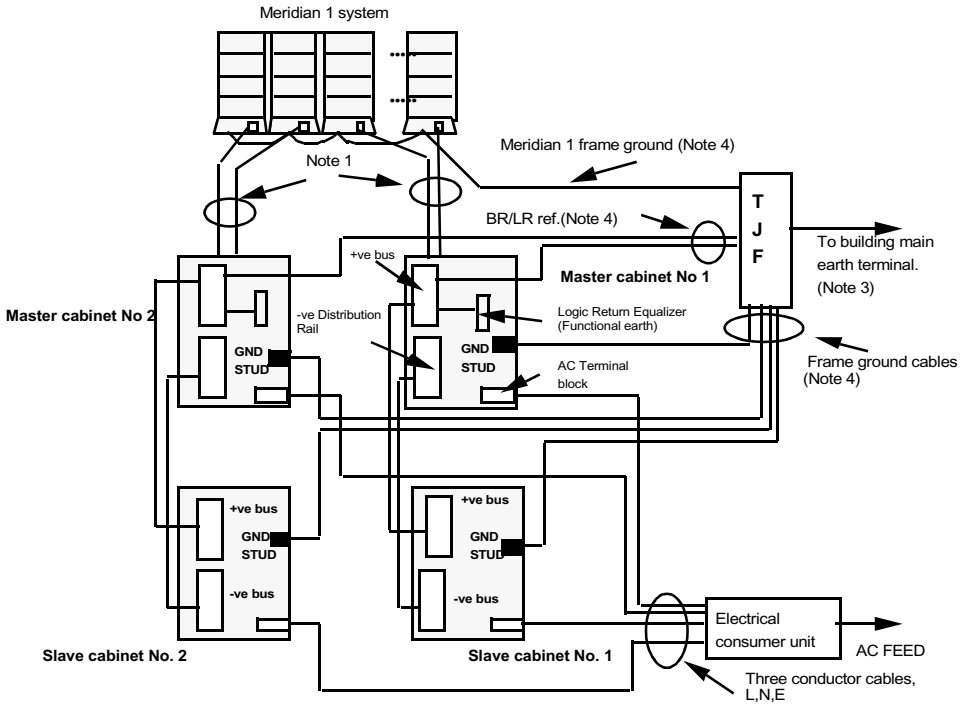
Note 3: 35 square mm green/yellow cable

Note 4: 16 square mm green/yellow cable

Note 5: Reference NTP 553-3001-210 for system monitor (XSM) cable connection.

Figure 28

Meridian 1 system grounding, two master power cabinets and associated slave cabinets



Note 1: This is 3 conductors (2 cube stack) or 5 conductors (3 or 4 cubes stack) enclosed in conduit. BR(+) goes to the positive bus, Logic return (functional earth,10 square mm) goes to the LRE. BAT(-) connects to the appropriate terminal on the negative distribution rail.

Note 2: All AC cables plus the BR/LR ref. wire *must* be enclosed in conduit.

Note 3: 35 square mm green/yellow cable

Note 4: 16 square mm green/yellow cable

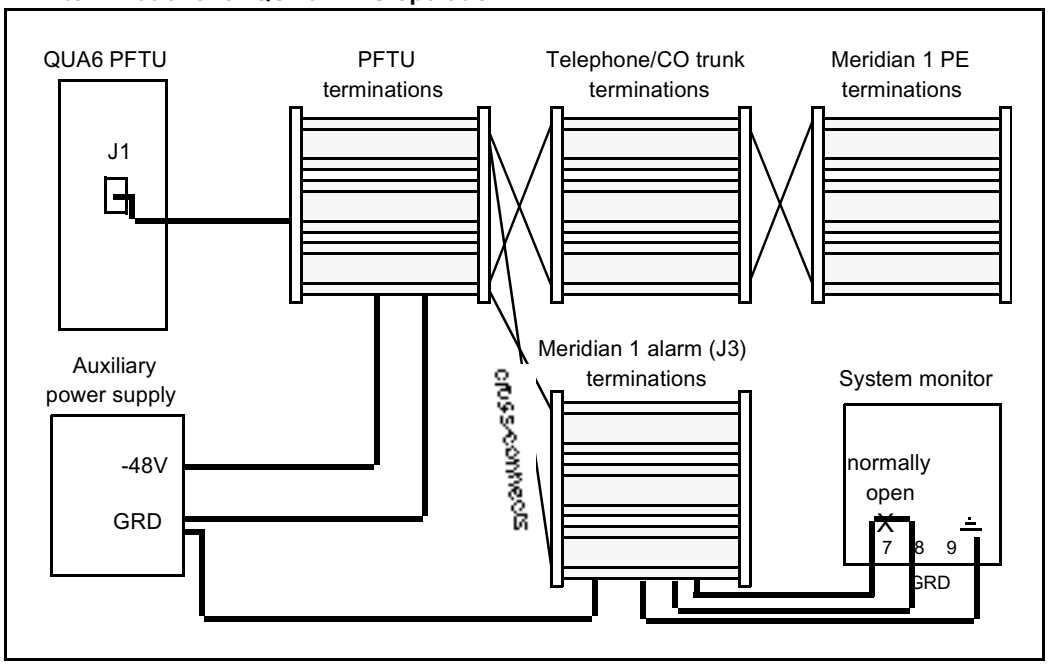
Note 5: Reference NTP 553-3001-210 for system monitor (XSM) cable connection.

Installing PFTUs

The QUA6 PFTU is powered from an auxiliary –48V dc fused output from the external power equipment.

- Figure 29 shows a high-level view of QUA6 PFTU alarm connections. For PFTU operation, wiring from the following equipment cross-connects through termination areas at the MDF:
- PFTU
- auxiliary –48 V dc
- system monitor
- Attendant Console (optional)
- designated telephones
- Central Office trunks

Figure 29
MDF terminations for QUA6 PFTU operation



Procedure 1
Install the PFTU

Follow this procedure to install a QUA6 PFTU.

1. Mount the QUA6 PFTU on the wall near the system cross connect terminal.
2. Secure it to the wall with four screws.
3. Install an NE-A25B-type 25 pair cable from connector J1 on the faceplate of the PFTU to its assigned location at the cross connect terminal.
4. Label the pairs of the J1 cable on the Krone cross-connect terminal as shown in the following illustration.

Figure 30
Krone cross connect PFTU labels

5 Connect the PFT Power and control connections to the J3 cable from the Pedestal.

Table 39
Control and power connections on cable J1

	J1 Cable from QUA6			
Function	**Pair Number**	**Pair Color**	**Connects to**	**Cross-connect to**
	1A	W–BL	(ALM)	Not used.

Table 39
Control and power connections on cable J1

	1B	BL–W	GND	Violet connection on alarm cable J3 NT8D46BH from the Pedestal.
C	2A	W–O	PFTS	Brown connection on alarm cable J3. Transfer initiated by applying ground to this lead.
O				
N	2B	O–W	GND	Violet connection on alarm cable J3.
T	3A	W–G	(TC)	Console transfer switch. See console connections. Transfer initiated by applying ground to this lead.
R				
O	3B	G–W		Not used
L	4A	W–BR		Not used
	4B	BR–W		Not used
PFTU Power	25A 25B	S–V V–S	–52 V –52 V	Green connection on J3 cable. Maximum 150 ma draw on Green lead.

Connecting trunks and telephones to the PFTU

Each QUA6 PFTU can transfer up to 5 trunks (PFT 1 through PFT 5). Automatic ground start is not performed by the PFTU. If trunks from the Public Exchange are ground start, the telephone used must have an earth recall button in order to work. Rotary dials (dial pulse) are required on telephones assigned to trunks that do not recognize tone pulses.

Procedure 1
Connect trunks and telephones to the PFTU

1 At the cross connect terminal, locate the terminations of the J1 cable.

2 Repeat for each trunk assigned to the PFTU:

Table 40
Power fail transfer unit connections (Part 1 of 2)

QUA6 J1 Cable	

Table 40
Power fail transfer unit connections (Part 2 of 2)

Function	Pair	Color	Connects to
	5A 5B	W-S S-W	Connect to the telephone
P **F**	6A 6B	R-BL BL-R	Connect to the telephone line card
T	7A 7B	R-O O-R	Connect to the central office trunk
1	8A 8B	R-G G-R	Connect to the trunk line card
	9A 9B	R-BR BR-R	Connect to the telephone
P **F**	10A 10B	R-S S-R	Connect to the telephone line card
T	11A 11B	BK-BL BL-BK	Connect to the central office trunk
2	12A 12B	BK-O O-BK	Connect to the trunk line card
	13A 13B	BK-G G-BK	Connect to the telephone
P **F**	14A 14B	BK-BR BR-BK	Connect to the telephone line card
T	15A 15B	BK-S S-BK	Connect to the central office trunk
3	16A 16B	Y-BL BL-Y	Connect to the trunk line card
	17A 17B	Y-O O-Y	Connect to the telephone
P **F**	18A 18B	Y-G G-Y	Connect to the telephone line card
T	19A 19B	Y-BR BR-Y	Connect to the central office trunk
4	20A 20B	Y-S S-Y	Connect to the trunk line card
QUA6 J1 Cable			

Function	Pair	Color	Connects to
	21A 21B	V-BL BL-V	Connect to the telephone
P **F**	22A 22B	V-O O-V	Connect to the telephone line card
T	23A 23B	V-G G-V	Connect to the central office trunk
5	24A 24B	V-BR BR-V	Connect to the trunk line card

This procedure provides cross connect tables for the following circuit cards:

- NT5K17 Direct Dial Inward (DDI) trunk card: Tables 41 to 46
- NT5K18 Exchange line trunk card: Tables 47 to 52
- NT5K19 AC15/RAN/PAG trunk card: Tables 53 to 82

To configure the above cards in LD 14 and LD 16, refer to Chapter 5 in this guide.

Table 41
NT8D11 CE/PE Module: NT5K17 DID Trunk Card pair terminations for I/O panel connector

Lead Designations	Pins	Pair Color	I/O Panel Connector	Unit Number
DDI Mode			A	
T0	26	W-BL		
R0	1	BL-W		Unit
	27	W-O		0
	2	O-W		
T1	28	W-G		
R1	3	G-W		Unit
	29	W-BR		1
	4	BR-W		
T2	30	W-S	S	
R2	5	S-W	L	Unit
	31	R-BL	O	2
	6	BL-R	T	
T3	32	R-O		
R3	7	O-R	0	Unit
	33	R-G		3
	8	G-R		
T4	34	R-BR		
R4	9	BR-R		Unit
	35	R-S		4
	10	S-R		
T5	36	BK-BL		
R5	11	BL-BK		Unit
	37	BK-S		5
	12	S-BK		
T6	38	BK-G		
R6	13	G-BK		Unit
	39	BK-BR		6
	14	BR-BK		
T7	40	BK-S		
R7	15	S-BK		Unit
	41	Y-BL		7
	16	BL-Y		

Table 42
NT8D11 CE/PE Module: NT5K17 Direct Dial Inward Trunk Card pair terminations for I/O panel connectors B,E,H

Lead Designations	Pins	Pair Color	I/O Panel Connector			Unit Number
DDI Mode			B	E	H	
T0 R0	26 1	W-BL BL-W				Unit
	27 2	W-O O-W				0
T1 R1	28 3	W-G G-W				Unit
	29 4	W-BR BR-W				1
T2 R2	30 5	W-S S-W	S L	S L	S L	Unit
	31 6	R-BL BL-R	O T	O T	O T	2
T3 R3	32 7	R-O O-R	1	4	7	Unit
	33 8	R-G G-R				3
T4 R4	34 9	R-BR BR-R				Unit
	35 10	R-S S-R				4
T5 R5	36 11	BK-BL BL-BK				Unit
	37 12	BK-S S-BK				5
T6 R6	38 13	BK-G G-BK				Unit
	39 14	BK-BR BR-BK				6
T7 R7	40 15	BK-S S-BK				Unit
	41 16	Y-BL BL-Y				7
T0 R0	42 17	Y-O O-Y				Unit
	43 18	Y-G G-Y				0
T1 R1	44 19	Y-BR BR-Y	S	S	S	Unit
	45 20	Y-S S-Y	L O	L O	L O	1
T2 R2	46 21	V-BL BL-V	T	T	T	Unit
	47 22	V-O O-V	2	5	8	2
T3 R3	48 23	V-G G-V				Unit
	49 24	V-BR BR-V				3

Table 43
NT8D11 CE/PE Module: NT5K17 Direct Dial Inward Trunk Card pair terminations for I/O panel connectors C,F,K

Lead Designations DDI Mode	Pins	Pair Color	I/O Panel Connector C	F	K	Unit Number
T0 R0	26 1	W-BL BL-W				Unit
	27 2	W-O O-W				4
T1 R1	28 3	W-G G-W	S	S	S	Unit
	29 4	W-BR BR-W	L O	L O	L O	5
T2 R2	30 5	W-S S-W	T	T	T	Unit
	31 6	R-BL BL-R	2	5	8	6
T3 R3	32 7	R-O O-R				Unit
	33 8	R-G G-R				7
T4 R4	34 9	R-BR BR-R				Unit
	35 10	R-S S-R				0
T5 R5	36 11	BK-BL BL-BK				Unit
	37 12	BK-S S-BK				1
T6 R6	38 13	BK-G G-BK				Unit
	39 14	BK-BR BR-BK				2
T7 R7	40 15	BK-S S-BK	S	S	S	Unit
	41 16	Y-BL BL-Y	L O	L O	L O	3
T0 R0	42 17	Y-O O-Y	T	T	T	Unit
	43 18	Y-G G-Y	3	6	9	4
T1 R1	44 19	Y-BR BR-Y				Unit
	45 20	Y-S S-Y				5
T2 R2	46 21	V-BL BL-V				Unit
	47 22	V-O O-V				6
T3 R3	48 23	V-G G-V				Unit
	49 24	V-BR BR-V				7

Table 44
NT5K17 Direct Dial Inward Trunk connections for NT8D37 I/O panel connectors A,E,K,R

Lead designations	Pins	Pair Color	I/O Panel Connector				Unit Number
DDI Mode			A	E	K	R	
T0 R0	26 1	W-BL BL-W					Unit 0
	27 2	W-O O-W					
T1 R1	28 3	W-G G-W					Unit 1
	29 4	W-BR BR-W					
T2 R2	30 5	W-S S-W	SL OT 0	SL OT 4	SL OT 8	SL OT 12	Unit 2
	31 6	R-BL BL-R					
T3 R3	32 7	R-O O-R					Unit 3
	33 8	R-G G-R					
T4 R4	34 9	R-BR BR-R					Unit 4
	35 10	R-S S-R					
T5 R5	36 11	BK-BL BL-BK					Unit 5
	37 12	BK-S S-BK					
T6 R6	38 13	BK-G G-BK					Unit 6
	39 14	BK-BR BR-BK					
T7 R7	40 15	BK-S S-BK					Unit 7
	41 16	Y-BL BL-Y					

Table 45
NT5K17 Direct Dial Inward Trunk connections for NT8D37 I/O panel connectors B,F,L,S

Lead Designations	Pins	Pair Color	I/O Panel Connector				Unit Number
DDI Mode			B	F	L	S	
T0 R0	26 1	W-BL BL-W					Unit 0
	27 2	W-O O-W					
T1 R1	28 3	W-G G-W					Unit 1
	29 4	W-BR BR-W					
T2 R2	30 5	W-S S-W	SLOT 1	SLOT 5	SLOT 9	SLOT 13	Unit 2
	31 6	R-BL BL-R					
T3 R3	32 7	R-O O-R					Unit 3
	33 8	R-G G-R					
T4 R4	34 9	R-BR BR-R					Unit 4
	35 10	R-S S-R					
T5 R5	36 11	BK-BL BL-BK					Unit 5
	37 12	BK-S S-BK					
T6 R6	38 13	BK-G G-BK					Unit 6
	39 14	BK-BR BR-BK					
T7 R7	40 15	BK-S S-BK					Unit 7
	41 16	Y-BL BL-Y					
T0 R0	42 17	Y-O O-Y					Unit 0
	43 18	Y-G G-Y					
T1 R1	44 19	Y-BR BR-Y	SLOT 2	SLOT 6	SLOT 10	SLOT 14	Unit 1
	45 20	Y-S S-Y					
T2 R2	46 21	V-BL BL-V					Unit 2
	47 22	V-O O-V					
T3 R3	48 23	V-G G-V					Unit 3
	49 24	V-BR BR-V					

Table 46
NT5K17 Direct Dial Inward Trunk connections for NT8D37 I/O panel connectors C,G,M,T

Lead Designations	Pins	Pair Color	I/O Panel Connector				Unit Number
DDI Mode			C	G	M	T	
T0	26	W-BL					
R0	1	BL-W					Unit
	27	W-O					
	2	O-W					4
T1	28	W-G					
R1	3	G-W	S	S	S	S	Unit
	29	W-BR	L	L	L	L	
	4	BR-W	O	O	O	O	5
T2	30	W-S	T	T	T	T	
R2	5	S-W					Unit
	31	R-BL	2	6	10	14	
	6	BL-R					6
T3	32	R-O					
R3	7	O-R					Unit
	33	R-G					
	8	G-R					7
T4	34	R-BR					
R4	9	BR-R					Unit
	35	R-S					
	10	S-R					0
T5	36	BK-BL					
R5	11	BL-BK					Unit
	37	BK-S					
	12	S-BK					1
T6	38	BK-G					
R6	13	G-BK					Unit
	39	BK-BR					
	14	BR-BK					2
T7	40	BK-S					
R7	15	S-BK	S	S	S	S	Unit
	41	Y-BL	L	L	L	L	
	16	BL-Y	O	O	O	O	3
T0	42	Y-O	T	T	T	T	
R0	17	O-Y					Unit
	43	Y-G	3	7	11	15	
	18	G-Y					4
T1	44	Y-BR					
R1	19	BR-Y					Unit
	45	Y-S					
	20	S-Y					5
T2	46	V-BL					
R2	21	BL-V					Unit
	47	V-O					
	22	O-V					6
T3	48	V-G					
R3	23	G-V					Unit
	49	V-BR					
	24	BR-V					7

Table 47
NT8D11 CE/PE Module: NT5K18 Flexible Central Office Trunk Card pair terminations for I/O panel connector A

Lead designations	Pins	Pair Color	I/O Panel Connector	Unit Number
COT			A	
T0 R0	26 1	W-BL BL-W		Unit 0
	27 2	W-O O-W		
T1 R1	28 3	W-G G-W		Unit 1
	29 4	W-BR BR-W		
T2 R2	30 5	W-S S-W	S L	Unit 2
	31 6	R-BL BL-R	O T	
T3 R3	32 7	R-O O-R	0	Unit 3
	33 8	R-G G-R		
T4 R4	34 9	R-BR BR-R		Unit 4
	35 10	R-S S-R		
T5 R5	36 11	BK-BL BL-BK		Unit 5
	37 12	BK-S S-BK		
T6 R6	38 13	BK-G G-BK		Unit 6
	39 14	BK-BR BR-BK		
T7 R7	40 15	BK-S S-BK		Unit 7
	41 16	Y-BL BL-Y		

Table 48
NT8D11 CE/PE Module: NT5K18 Flexible Central Office Trunk Card pair terminations for I/O panel connectors B,E,H

Lead designations	Pins	Pair Color	I/O Panel Connector			Unit Number
COT			B	E	H	
T0 R0	26 1	W-BL BL-W				Unit
	27 2	W-O O-W				0
T1 R1	28 3	W-G G-W				Unit
	29 4	W-BR BR-W				1
T2 R2	30 5	W-S S-W	S L	S L	S L	Unit
	31 6	R-BL BL-R	O T	O T	O T	2
T3 R3	32 7	R-O O-R	1	4	7	Unit
	33 8	R-G G-R				3
T4 R4	34 9	R-BR BR-R				Unit
	35 10	R-S S-R				4
T5 R5	36 11	BK-BL BL-BK				Unit
	37 12	BK-S S-BK				5
T6 R6	38 13	BK-G G-BK				Unit
	39 14	BK-BR BR-BK				6
T7 R7	40 15	BK-S S-BK				Unit
	41 16	Y-BL BL-Y				7
T0 R0	42 17	Y-O O-Y				Unit
	43 18	Y-G G-Y				0
T1 R1	44 19	Y-BR BR-Y	S	S	S	Unit
	45 20	Y-S S-Y	L O	L O	L O	1
T2 R2	46 21	V-BL BL-V	T	T	T	Unit
	47 22	V-O O-V	2	5	8	2
T3 R3	48 23	V-G G-V				Unit
	49 24	V-BR BR-V				3

Table 49
NT8D11 CE/PE Module: NT5K18 Flexible Central Office Trunk Card pair terminations for I/O panel connectors C,F,K

Lead designations	Pins	Pair Color	I/O Panel Connector			Unit Number
COT			C	F	K	
T0	26	W-BL				
R0	1	BL-W				Unit
	27	W-O				4
	2	O-W				
T1	28	W-G				
R1	3	G-W	S	S	S	Unit
	29	W-BR	L	L	L	5
	4	BR-W	O	O	O	
T2	30	W-S	T	T	T	
R2	5	S-W				Unit
	31	R-BL	2	5	8	6
	6	BL-R				
T3	32	R-O				
R3	7	O-R				Unit
	33	R-G				7
	8	G-R				
T4	34	R-BR				
R4	9	BR-R				Unit
	35	R-S				0
	10	S-R				
T5	36	BK-BL				
R5	11	BL-BK				Unit
	37	BK-S				1
	12	S-BK				
T6	38	BK-G				
R6	13	G-BK				Unit
	39	BK-BR				2
	14	BR-BK				
T7	40	BK-S				
R7	15	S-BK	S	S	S	Unit
	41	Y-BL	L	L	L	3
	16	BL-Y	O	O	O	
T0	42	Y-O	T	T	T	
R0	17	O-Y				Unit
	43	Y-G	3	6	9	4
	18	G-Y				
T1	44	Y-BR				
R1	19	BR-Y				Unit
	45	Y-S				5
	20	S-Y				
T2	46	V-BL				
R2	21	BL-V				Unit
	47	V-O				6
	22	O-V				
T3	48	V-G				
R3	23	G-V				Unit
	49	V-BR				7
	24	BR-V				

Table 50
NT5K18 Flexible Central Office Trunk connections for NT8D37 I/O panel connectors A,E,K,R

Lead designations	Pins	Pair Color	I/O Panel Connector				Unit Number
COT			A	E	K	R	
T0 R0	26 1	W-BL BL-W					Unit
	27 2	W-O O-W					0
T1 R1	28 3	W-G G-W					Unit
	29 4	W-BR BR-W					1
T2 R2	30 5	W-S S-W	S L	S L	S L	S L	Unit
	31 6	R-BL BL-R	O T	O T	O T	O T	2
T3 R3	32 7	R-O O-R	0	4	8	12	Unit
	33 8	R-G G-R					3
T4 R4	34 9	R-BR BR-R					Unit
	35 10	R-S S-R					4
T5 R5	36 11	BK-BL BL-BK					Unit
	37 12	BK-S S-BK					5
T6 R6	38 13	BK-G G-BK					Unit
	39 14	BK-BR BR-BK					6
T7 R7	40 15	BK-S S-BK					Unit
	41 16	Y-BL BL-Y					7

Table 51
NT5K18 Flexible Central Office Trunk connections for NT8D37 I/O panel connectors B,F,L,S

Lead designations	Pins	Pair Color	I/O Panel Connector				Unit Number
COT			B	F	L	S	
T0	26	W-BL					
R0	1	BL-W					Unit
	27	W-O					0
	2	O-W					
T1	28	W-G					
R1	3	G-W					Unit
	29	W-BR					1
	4	BR-W					
T2	30	W-S	S	S	S	S	
R2	5	S-W	L	L	L	L	Unit
	31	R-BL	O	O	O	O	2
	6	BL-R	T	T	T	T	
T3	32	R-O					
R3	7	O-R	1	5	9	13	Unit
	33	R-G					3
	8	G-R					
T4	34	R-BR					
R4	9	BR-R					Unit
	35	R-S					4
	10	S-R					
T5	36	BK-BL					
R5	11	BL-BK					Unit
	37	BK-S					5
	12	S-BK					
T6	38	BK-G					
R6	13	G-BK					Unit
	39	BK-BR					6
	14	BR-BK					
T7	40	BK-S					
R7	15	S-BK					Unit
	41	Y-BL					7
	16	BL-Y					
T0	42	Y-O					
R0	17	O-Y					Unit
	43	Y-G					0
	18	G-Y					
T1	44	Y-BR					
R1	19	BR-Y	S	S	S	S	Unit
	45	Y-S	L	L	L	L	1
	20	S-Y	O	O	O	O	
T2	46	V-BL	T	T	T	T	
R2	21	BL-V					Unit
	47	V-O	2	6	10	14	2
	22	O-V					
T3	48	V-G					
R3	23	G-V					Unit
	49	V-BR					3
	24	BR-V					

Table 52
NT5K18 Flexible Central Office Trunk connections for NT8D37 I/O panel connectors C,G,M,T

Lead designations	Pins	Pair Color	I/O Panel Connector				Unit Number
COT			C	G	M	T	
T0	26	W-BL					
R0	1	BL-W					Unit
	27	W-O					4
	2	O-W					
T1	28	W-G					
R1	3	G-W	S	S	S	S	Unit
	29	W-BR	L	L	L	L	5
	4	BR-W	O	O	O	O	
T2	30	W-S	T	T	T	T	
R2	5	S-W					Unit
	31	R-BL	2	6	10	14	6
	6	BL-R					
T3	32	R-O					
R3	7	O-R					Unit
	33	R-G					7
	8	G-R					
T4	34	R-BR					
R4	9	BR-R					Unit
	35	R-S					0
	10	S-R					
T5	36	BK-BL					
R5	11	BL-BK					Unit
	37	BK-S					1
	12	S-BK					
T6	38	BK-G					
R6	13	G-BK					Unit
	39	BK-BR					2
	14	BR-BK					
T7	40	BK-S					
R7	15	S-BK	S	S	S	S	Unit
	41	Y-BL	L	L	L	L	3
	16	BL-Y	O	O	O	O	
T0	42	Y-O	T	T	T	T	
R0	17	O-Y					Unit
	43	Y-G	3	7	11	15	4
	18	G-Y					
T1	44	Y-BR					
R1	19	BR-Y					Unit
	45	Y-S					5
	20	S-Y					
T2	46	V-BL					
R2	21	BL-V					Unit
	47	V-O					6
	22	O-V					
T3	48	V-G					
R3	23	G-V					Unit
	49	V-BR					7
	24	BR-V					

Table 53
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card 2W Paging mode pair terminations for I/O panel connector A

Pair	Pins	Pair Color	I/O Panel Connector	Unit Number
			A	
T0 R0	27 2	W-O O-W	SLOT 0	Unit 0
A PG	29 4	W-BR BR-W		
T1 R1	31 6	R-BL BL-R		Unit 1
A PG	33 8	R-G G-R		
T2 R2	35 10	R-S S-R		Unit 2
A PG	37 12	BL-O O-BL		
T3 R3	39 14	BK-BR BR-BK		Unit 3
A PG	41 16	Y-BL BL-Y		

Table 54
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card 2W Paging mode pair terminations for I/O panel connectors B,E,H

Pair	Pins	Pair Color	I/O Panel Connector			Unit Number
			B	E	H	
T0 R0	27 2	W-O O-W	SLOT 1	SLOT 4	SLOT 7	Unit 0
A PG	29 4	W-BR BR-W				
T1 R1	31 6	R-BL BL-R				Unit 1
A PG	33 8	R-G G-R				
T2 R2	35 10	R-S S-R				Unit 2
A PG	37 12	BL-O O-BL				
T3 R3	39 14	BK-BR BR-BK				Unit 3
A PG	41 16	Y-BL BL-Y				
T0 R0	43 18	Y-G G-Y	SLOT 2	SLOT 5	SLOT 8	Unit 0
A PG	45 20	Y-S S-Y				
T1 R1	47 22	V-O O-V				Unit 1
A PG	49 24	V-BR BR-V				

Table 55
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card 2W Paging mode pair terminations for I/O panel connectors C,F,K

Pair	Pins	Pair Color	I/O Panel Connector			Unit Number
			C	F	K	
T2 R2 A PG	27 2 29 4	W-O O-W W-BR BR-W	SLOT 2	SLOT 5	SLOT 8	Unit 2
T3 R3 A PG	31 6 33 8	R-BL BL-R R-G G-R				Unit 3
T0 R0 A PG	35 10 37 12	R-S S-R BL-O O-BL				Unit 0
T1 R1 A PG	39 14 41 16	BK-BR BR-BK Y-BL BL-Y	SLOT 3	SLOT 6	SLOT 9	Unit 1
T2 R2 A PG	43 18 45 20	Y-G G-Y Y-S S-Y				Unit 2
T3 R3 A PG	47 22 49 24	V-O O-V V-BR BR-V				Unit 3

Table 56
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card 2W Type 1 mode pair terminations for I/O panel connector A

Pair	Pins	Pair Color	I/O Panel Connector	Unit Number
			A	
T0 R0	27 2	W-O O-W	SLOT 0	Unit 0
E M	28 3	W-G G-W		
T1 R1	31 6	R-BL BL-R		Unit 1
E M	32 7	R-O O-R		
T2 R2	35 10	R-S S-R		Unit 2
E M	36 11	BK-BL BL-BK		
T3 R3	39 14	BK-BR BR-BK		Unit 3
E M	40 15	BK-S S-BK		

Table 57
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card 2W Type 1 mode pair terminations for I/O panel connectors B,E,H

Pair	Pins	Pair Color	I/O Panel Connector			Unit Number
			B	E	H	
T0 R0	27 2	W-O O-W	SLOT 1	SLOT 4	SLOT 7	Unit 0
E M	28 3	W-G G-W				
T1 R1	31 6	R-BL BL-R				Unit 1
E M	32 7	R-O O-R				
T2 R2	35 10	R-S S-R				Unit 2
E M	36 11	BK-BL BL-BK				
T3 R3	39 14	BK-BR BR-BK				Unit 3
E M	40 15	BK-S S-BK				
T0 R0	43 18	Y-G G-Y	SLOT 2	SLOT 5	SLOT 8	Unit 0
E M	44 19	Y-BR BR-Y				
T1 R1	47 22	V-O O-V				Unit 1
E M	48 23	V-G G-V				

Table 58
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card 2W Type 1 mode pair terminations for I/O panel connectors C,F,K

Pair	Pins	Pair Color	I/O Panel Connector			Unit Number
			C	F	K	
T2 R2 E M	27 2 28 3	W-O O-W W-G G-W	SLOT 2	SLOT 5	SLOT 8	Unit 2
T3 R3 E M	31 6 32 7	R-BL BL-R R-O O-R				Unit 3
T0 R0 E M	35 10 36 11	R-S S-R BK-BL BL-BK	SLOT 3	SLOT 6	SLOT 9	Unit 0
T1 R1 E M	39 14 40 15	BK-BR BR-BK BK-S S-BK				Unit 1
T2 R2 E M	43 18 44 19	Y-G G-Y Y-BR BR-Y				Unit 2
T3 R3 E M	47 22 48 23	V-O O-V V-G G-V				Unit 3

Table 59
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card 4W Type 1 mode pair terminations for I/O panel connector A

Pair	Pin	Pair Color	I/O Panel Connector	Unit Number
			A	
TA TB	26 1	W-BL BL-W		
RA RB	27 2	W-O O-W		Unit
E M	28 3	W-G G-W		0
TA TB	30 5	W-S S-W		
RA RB	31 6	R-BL BL-R		Unit
E M	32 7	R-O O-R	S L O T	1
TA TB	34 9	R-BR BR-R	0	
RA RB	35 10	R-S S-R		Unit
E M	36 11	BK-BL BL-BK		2
TA TB	38 13	BK-G G-BK		
RA RB	39 14	BK-BR BR-BK		Unit
E M	40 15	BK-S S-BK		3

Note: **The cable pair designated TA, TB is the transmit pair. The pair designated RA, RB is the receive pair.**

Table 60
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card 4W Type 1 mode pair terminations for I/O panel connectors B,E,H

Pair	Pin	Pair Color	I/O Panel Connector			Unit Number
			B	E	H	
TA TB	26 1	W-BL BL-W				
RA RB	27 2	W-O O-W				Unit
E M	28 3	W-G G-W				0
TA TB	30 5	W-S S-W				
RA RB	31 6	R-BL BL-R				Unit
E M	32 7	R-O O-R	SLOT	SLOT	SLOT	1
TA TB	34 9	R-BR BR-R	1	4	7	
RA RB	35 10	R-S S-R				Unit
E M	36 11	BK-BL BL-BK				2
TA TB	38 13	BK-G G-BK				
RA RB	39 14	BK-BR BR-BK				Unit
E M	40 15	BK-S S-BK				3
TA TB	42 17	Y-O O-Y				
RA RB	43 18	Y-G G-Y				Unit
E M	44 19	Y-BR BR-Y	SLOT	SLOT	SLOT	0
TA TB	46 21	V-BL BL-V	2	5	8	
RA RB	47 22	V-O O-V				Unit
E M	48 23	V-G G-V				1

Note: The cable pair designated TA, TB is the transmit pair. The pair designated RA, RB is the receive pair.

Table 61
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card 4W Type 1 mode pair terminations for I/O panel connectors C,F,K

Pair	Pins	Pair Color	I/O Panel Connector			Unit Number
			C	F	K	
TA TB	26 1	W-BL BL-W				
RA RB	27 2	W-O O-W				Unit
E M	28 3	W-G G-W				2
			SL OT 2	SL OT 5	SL OT 8	
TA TB	30 5	W-S S-W				
RA RB	31 6	R-BL BL-R				Unit
E M	32 7	R-O O-R				3
TA TB	34 9	R-BR BR-R				
RA RB	35 10	R-S S-R				Unit
E M	36 11	BK-BL BL-BK				0
TA TB	38 13	BK-G G-BK				
RA RB	39 14	BK-BR BR-BK				Unit
E M	40 15	BK-S S-BK	SL OT 3	SL OT 6	SL OT 9	1
TA TB	42 17	Y-O O-Y				
RA RB	43 18	Y-G G-Y				Unit
E M	44 19	Y-BR BR-Y				2
TA TB	46 21	V-BL BL-V				
RA RB	47 22	V-O O-V				Unit
E M	48 23	V-G G-V				3

Note: The cable pair designated TA, TB is the transmit pair. The pair designated RA, RB is the receive pair.

Table 62
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card AC15 Trunk mode pair terminations for I/O panel connector A

Pair	Pin	Pair Color	I/O Panel Connector	Unit Number
			A	
TA	26	W-BL		
TB	1	BL-W		
RA	27	W-O		
RB	2	O-W		Unit
				0
TA	30	W-S		
TB	5	S-W		
RA	31	R-BL		
RB	6	BL-R		Unit
			S	1
			L	
			O	
			T	
TA	34	R-BR		
TB	9	BR-R	0	
RA	35	R-S		
RB	10	S-R		Unit
				2
TA	38	BK-G		
TB	13	G-BK		
RA	39	BK-BR		
RB	14	BR-BK		Unit
				3

Note: **The cable pair designated TA, TB is the transmit pair. The pair designated RA, RB is the receive pair.**

Table 63
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card AC15 Trunk mode pair terminations for I/O panel connectors B,E,H

Pair	Pin	Pair Color	I/O Panel Connector			Unit Number
			B	E	H	
TA TB	26 1	W-BL BL-W				
RA RB	27 2	W-O O-W				Unit 0
TA TB	30 5	W-S S-W				
RA RB	31 6	R-BL BL-R				Unit 1
TA TB	34 9	R-BR BR-R	SLOT 1	SLOT 4	SLOT 7	
RA RB	35 10	R-S S-R				Unit 2
TA TB	38 13	BK-G G-BK				
RA RB	39 14	BK-BR BR-BK				Unit 3
TA TB	42 17	Y-O O-Y				
RA RB	43 18	Y-G G-Y				Unit 0
TA TB	46 21	V-BL BL-V	SLOT 2	SLOT 5	SLOT 8	
RA RB	47 22	V-O O-V				Unit 1

Note: The cable pair designated TA, TB is the transmit pair. The pair designated RA, RB is the receive pair.

Table 64
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card AC15 Trunk mode pair terminations for I/O panel connectors C,F,K

Pair	Pins	Pair Color	I/O Panel Connector			Unit Number
			C	F	K	
TA TB	26 1	W-BL BL-W				
RA RB	27 2	W-O O-W				Unit 2
			SLOT 2	SLOT 5	SLOT 8	
TA TB	30 5	W-S S-W				
RA RB	31 6	R-BL BL-R				Unit 3
TA TB	34 9	R-BR BR-R				
RA RB	35 10	R-S S-R				Unit 0
TA TB	38 13	BK-G G-BK				
RA RB	39 14	BK-BR BR-BK				Unit 1
			SLOT 3	SLOT 6	SLOT 9	
TA TB	42 17	Y-O O-Y				
RA RB	43 18	Y-G G-Y				Unit 2
TA TB	46 21	V-BL BL-V				
RA RB	47 22	V-O O-V				Unit 3

Note: The cable pair designated TA, TB is the transmit pair. The pair designated RA, RB is the receive pair.

Table 65
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card Recorded Announcement mode pair terminations for I/O panel connector A

Pair	Pin	Pair Color	I/O Panel Connector	Unit Number
			A	
T0 R0	26 1	W-BL BL-W		
				Unit
				0
SIG B SIG A	29 4	W-BR BR-W		
T1 R1	30 5	W-S S-W		
				Unit
			S L	1
SIG B SIG A	33 8	R-G G-R	O T	
T2 R2	34 9	R-BR BR-R	0	
				Unit
				2
SIG B SIG A	37 12	BL-O O-BK		
T3 R3	38 13	BK-G G-BK		
				Unit
				3
SIG B SIG A	41 16	Y-BL BL-Y		

Table 66
NT8D11 CE/PE Module:NT5K19 E&M Trunk Card RAN mode pair terminations for I/O panel connectors B,E,H

Pair	Pin	Pair Color	I/O Panel Connector			Unit Number
			B	E	H	
T0 R0	26 1	W-BL BL-W				Unit 0
SIG B SIG A	29 4	W-BR BR-W				
T1 R1	30 5	W-S S-W				Unit 1
SIG B SIG A	33 8	R-G G-R	SLOT 1	SLOT 4	SLOT 7	
T2 R2	34 9	R-BR BR-R				Unit 2
SIG B SIG A	37 12	BL-O O-BK				
T3 R3	38 13	BK-G G-BK				Unit 3
SIG B SIG A	41 16	Y-BL BL-Y				
T0 R0	42 17	Y-O O-Y				Unit 0
SIG B SIG A	45 20	Y-S S-Y	SLOT 2	SLOT 5	SLOT 8	
T1 R1	46 21	V-BL BL-V				Unit 1
SIG B SIG A	49 24	V-BR BR-V				

Table 67
NT8D11 CE/PE Module: NT5K19 E&M Trunk Card RAN mode pair terminations for I/O panel connectors C,F,K

Pair	Pins	Pair Color	I/O Panel Connector			Unit Number
			C	F	K	
T2 R2	26 1	W-BL BL-W				
						Unit 2
SIGB SIGA	29 4	W-BR BR-W	SLOT 2	SLOT 5	SLOT 8	
T3 R3	30 5	W-S S-W				
						Unit 3
SIGB SIGA	33 8	R-G G-R				
T0 R0	34 9	R-BR BR-R				
						Unit 0
SIGB SIGA	37 12	BL-O O-BK				
T1 R1	38 13	BK-G G-BK				
						Unit 1
			SLOT 3	SLOT 6	SLOT 9	
SIGB SIGA	41 16	Y-BL BL-Y				
T2 R2	42 17	Y-O O-Y				
						Unit 2
SIGB SIGA	45 20	Y-S S-Y				
T3 R3	46 21	V-BL BL-V				
						Unit 3
SIGB SIGA	49 24	V-BR BR-V				

Table 68
NT5K19 Flexible E&M 2-Wire Type 1 connections for NT8D37 I/O panel connectors A,E,K,R

Pair	Pins	Pair Color	I/O Panel Connector				Unit Number
			A	E	K	R	
T0 R0	27 2	W-O O-W	SLOT 0	SLOT 4	SLOT 8	SLOT 12	Unit 0
E M	28 3	W-G G-W					
T1 R1	31 6	R-BL BL-R					Unit 1
E M	32 7	R-O O-R					
T2 R2	35 10	R-S S-R					Unit 2
E M	36 11	BK-BL BL-BK					
T3 R3	39 14	BK-BR BR-BK					Unit 3
E M	40 15	BK-S S-BK					

Table 69
NT5K19 E&M 2-Wire Type 1 connections for NT8D37 I/O panel connectors B,F,L,S

Pair	Pins	Pair Color	I/O Panel Connector				Unit Number
			B	F	L	S	
T0 R0	27 2	W-O O-W	SLOT 1	SLOT 5	SLOT 9	SLOT 13	Unit 0
E M	28 3	W-G G-W					
T1 R1	31 6	R-BL BL-R					Unit 1
E M	32 7	R-O O-R					
T2 R2	35 10	R-S S-R					Unit 2
E M	36 11	BK-BL BL-BK					
T3 R3	39 14	BK-BR BR-BK					Unit 3
E M	40 15	BK-S S-BK					
T0 R0	43 18	Y-G G-Y	SLOT 2	SLOT 6	SLOT 10	SLOT 14	Unit 0
E M	44 19	Y-BR BR-Y					
T1 R1	47 22	V-O O-V					Unit 1
E M	48 23	V-G G-V					

Table 70
NT5K19 Flexible E&M 2-Wire Type 1 trunk connections for NT8D37 I/O panel connectors C,G,M,T

Pair	Pins	Pair Color	I/O Panel Connector				Unit Number
			C	G	M	T	
T2 R2 E M	27 2 28 3	W-O O-W W-G G-W	SLOT 2	SLOT 6	SLOT 10	SLOT 14	Unit 2
T3 R3 E M	31 6 32 7	R-BL BL-R R-O O-R					Unit 3
T0 R0 E M	35 10 36 11	R-S S-R BK-BL BL-BK					Unit 0
T1 R1 E M	39 14 40 15	BK-BR BR-BK BK-S S-BK	SLOT 3	SLOT 7	SLOT 11	SLOT 15	Unit 1
T2 R2 E M	43 18 44 19	Y-G G-Y Y-BR BR-Y					Unit 2
T3 R3 E M	47 22 48 23	V-O O-V V-G G-V					Unit 3

Table 71
NT5K19 Flexible E&M 2-Wire Paging trunk connections for NT8D37 I/O panel connectors A,E,K,R

Pair	Pins	Pair Color	I/O Panel Connector				Unit Number
			A	E	K	R	
T0 R0	27 2	W-O O-W	SLOT 0	SLOT 4	SLOT 8	SLOT 12	Unit 0
A PG	29 4	W-BR BR-W					
T1 R1	31 6	R-BL BL-R					Unit 1
A PG	33 8	R-G G-R					
T2 R2	35 10	R-S S-R					Unit 2
A PG	37 12	BL-O O-BL					
T3 R3	39 14	BK-BR BR-BK					Unit 3
A PG	41 16	Y-BL BL-Y					

Table 72
NT5K19 Flexible E&M 2-Wire Paging trunk connections for NT8D37 I/O panel connectors B,F,L,S

Pair	Pins	Pair Color	I/O Panel Connector				Unit Number
			B	F	L	S	
T0 R0	27 2	W-O O-W	SLOT 1	SLOT 5	SLOT 9	SLOT 13	Unit 0
A PG	29 4	W-BR BR-W					
T1 R1	31 6	R-BL BL-R					Unit 1
A PG	33 8	R-G G-R					
T2 R2	35 10	R-S S-R					Unit 2
A PG	37 12	BL-O O-BL					
T3 R3	39 14	BK-BR BR-BK					Unit 3
A PG	41 16	Y-BL BL-Y					
T0 R0	43 18	Y-G G-Y	SLOT 2	SLOT 6	SLOT 10	SLOT 14	Unit 0
A PG	45 20	Y-S S-Y					
T1 R1	47 22	V-O O-V					Unit 1
A PG	49 24	V-BR BR-V					

Table 73
NT5K19 Flexible E&M 2-Wire Paging trunk connections for NT8D37 I/O panel connectors C,G,M,T

Pair	Pins	Pair Color	I/O Panel Connector				Unit Number
			C	G	M	T	
T2 R2 A PG	27 2 29 4	W-O O-W W-BR BR-W	SLOT 2	SLOT 6	SLOT 10	SLOT 14	Unit 2
T3 R3 A PG	31 6 33 8	R-BL BL-R R-G G-R					Unit 3
T0 R0 A PG	35 10 37 12	R-S S-R BL-O O-BL					Unit 0
T1 R1 A PG	39 14 41 16	BK-BR BR-BK Y-BL BL-Y	SLOT 3	SLOT 7	SLOT 11	SLOT 15	Unit 1
T2 R2 A PG	43 18 45 20	Y-G G-Y Y-S S-Y					Unit 2
T3 R3 A PG	47 22 49 24	V-O O-V V-BR BR-V					Unit 3

Table 74
NT5K19 Flexible E&M 2-Wire Recorded Announcement trunk connections for NT8D37 I/O panel connectors A,E,K,R

Pair	Pins	Pair Color	I/O Panel Connector				Unit Number
			A	E	K	R	
T0 R0	26 1	W-BL BL-W	SLOT 0	SLOT 4	SLOT 8	SLOT 12	Unit 0
SIG B SIG A	29 4	W-BR BR-W					
T1 R1	30 5	W-S S-W					Unit 1
SIG B SIG A	33 8	R-G G-R					
T2 R2	34 9	R-BR BR-R					Unit 2
SIG B SIG A	37 12	BL-O O-BL					
T3 R3	38 13	BK-G G-BK					Unit 3
SIG B SIG A	41 16	Y-BL BL-Y					

Table 75
NT5K19 Flexible E&M 2-Wire Recorded Announcement trunk connections for NT8D37 I/O panel connectors B,F,L,S

Pair	Pins	Pair Color	I/O Panel Connector				Unit Number
			B	F	L	S	
T0 R0	26 1	W-BL BL-W	SLOT 1	SLOT 5	SLOT 9	SLOT 13	Unit 0
SIG B SIG A	29 4	W-BR BR-W					
T1 R1	30 5	W-S S-W					Unit 1
SIG B SIG A	33 8	R-G G-R					
T2 R2	34 9	R-BR BR-R					Unit 2
SIG B SIG A	37 12	BL-O O-BL					
T3 R3	38 13	BK-G G-BK					Unit 3
SIG B SIG A	41 16	Y-BL BL-Y					
T0 R0	42 17	Y-O O-Y	SLOT 2	SLOT 6	SLOT 10	SLOT 14	Unit 0
SIG B SIG A	45 20	Y-S S-Y					
T1 R1	46 21	V-BL BL-V					Unit 1
SIG B SIG A	49 24	V-BR BR-V					

Table 76
NT5K19 Flexible E&M 2-Wire Recorded Announcement trunk connections for NT8D37 I/O panel connectors C,G,M,

T

Pair	Pins	Pair Color	I/O Panel Connector				Unit Number
			C	G	M	T	
T2 R2 SIG B SIG A	26 1 29 4	W-BL BL-W W-BR BR-W	SLOT	SLOT	SLOT	SLOT	Unit 2
T3 R3 SIG B SIG A	30 5 33 8	W-S S-W R-G G-R	2	6	10	14	Unit 3
T0 R0 SIG B SIG A	34 9 37 12	R-BR BR-R BL-O O-BL					Unit 0
T1 R1 SIG B SIG A	38 13 41 16	BK-G G-BK Y-BL BL-Y	SLOT	SLOT	SLOT	SLOT	Unit 1
T2 R2 SIG B SIG A	42 17 45 20	Y-O O-Y Y-S S-Y	3	7	11	15	Unit 2
T3 R3 SIG B SIG A	46 21 49 24	V-BL BL-V V-BR BR-V					Unit 3

Table 77
NT5K19 Flexible E&M 4-Wire Type 1 connections for NT8D37 I/O panel connectors A,E,K,R

Lead designations	Pin	Pair Color	I/O Panel Connector				Unit Number
Type 1 mode			A	E	K	R	
TA	26	W-BL					
TB	1	BL-W					
RA	27	W-O					
RB	2	O-W					Unit
E	28	W-G					0
M	3	G-W					
TA	30	W-S					
TB	5	S-W					
RA	31	R-BL					
RB	6	BL-R					Unit
E	32	R-O	S L O T	S L O T	S L O T	S L O T	1
M	7	O-R					
TA	34	R-BR					
TB	9	BR-R	0	4	8	12	
RA	35	R-S					
RB	10	S-R					Unit
E	36	BK-BL					2
M	11	BL-BK					
TA	38	BK-G					
TB	13	G-BK					
RA	39	BK-BR					
RB	14	BR-BK					Unit
E	40	BK-S					3
M	15	S-BK					

Note: **The cable pair designated TA, TA is the transmit pair. The pair designated RA, RB is the receive pair.**

Table 78
NT5K19 Flexible E&M 4-Wire Type 1 connections for NT8D37 I/O panel connectors B,F,L,S

Lead designations	Pin	Pair Color	I/O Panel Connector				Unit Number
Type 1 mode			B	F	L	S	
TA	26	W-BL					
TB	1	BL-W					
RA	27	W-O					
RB	2	O-W					Unit
E	28	W-G					0
M	3	G-W					
TA	30	W-S					
TB	5	S-W					
RA	31	R-BL					
RB	6	BL-R					Unit
E	32	R-O	SLOT	SLOT	SLOT	SLOT	1
M	7	O-R					
TA	34	R-BR					
TB	9	BR-R	1	5	9	13	
RA	35	R-S					
RB	10	S-R					Unit
E	36	BK-BL					2
M	11	BL-BK					
TA	38	BK-G					
TB	13	G-BK					
RA	39	BK-BR					
RB	14	BR-BK					Unit
E	40	BK-S					3
M	15	S-BK					
TA	42	Y-O					
TB	17	O-Y					
RA	43	Y-G					
RB	18	G-Y					Unit
E	44	Y-BR	SLOT	SLOT	SLOT	SLOT	0
M	19	BR-Y					
TA	46	V-BL					
TB	21	BL-V	2	6	10	14	
RA	47	V-O					
RB	22	O-V					Unit
E	48	V-G					1
M	23	G-V					

Note: The cable pair designated TA, TA is the transmit pair. The pair designated RA, RB is the receive pair.

Table 79
NT5K19 Flexible E&M 4-Wire Type 1 connections for NT8D37 I/O panel connectors C, G, M, T

Lead designations	Pin	Pair Color	I/O Panel Connector				Unit Number
Type 1 mode			C	G	M	T	
TA	26	W-BL					
TB	1	BL-W					
RA	27	W-O					
RB	2	O-W					Unit
E	28	W-G					2
M	3	G-W	SLOT 2	SLOT 6	SLOT 10	SLOT 14	
TA	30	W-S					
TB	5	S-W					
RA	31	R-BL					
RB	6	BL-R					Unit
E	32	R-O					3
M	7	O-R					
TA	34	R-BR					
TB	9	BR-R					
RA	35	R-S					
RB	10	S-R					Unit
E	36	BK-BL					0
M	11	BL-BK					
TA	38	BK-G					
TB	13	G-BK					
RA	39	BK-BR					
RB	14	BR-BK					Unit
E	40	BK-S					1
M	15	S-BK	SLOT 3	SLOT 7	SLOT 11	SLOT 15	
TA	42	Y-O					
TB	17	O-Y					
RA	43	Y-G					
RB	18	G-Y					Unit
E	44	Y-BR					2
M	19	BR-Y					
TA	46	V-BL					
TB	21	BL-V					
RA	47	V-O					
RB	22	O-V					Unit
E	48	V-G					3
M	23	G-V					

Note: The cable pair designated TA, TA is the transmit pair. The pair designated RA, RB is the receive pair.

Table 80
NT5K19 Flexible E&M AC15 trunk connections for NT8D37 I/O panel connectors A,E,K,R

Lead designations	Pin	Pair Color	I/O Panel Connector				Unit Number
Type 1 mode			A	E	K	R	
TA	26	W-BL					
TB	1	BL-W					
RA	27	W-O					
RB	2	O-W					Unit 0
TA	30	W-S					
TB	5	S-W					
RA	31	R-BL					
RB	6	BL-R					Unit 1
			SLOT 0	SLOT 4	SLOT 8	SLOT 12	
TA	34	R-BR					
TB	9	BR-R					
RA	35	R-S					
RB	10	S-R					Unit 2
TA	38	BK-G					
TB	13	G-BK					
RA	39	BK-BR					
RB	14	BR-BK					Unit 3

Note: **The cable pair designated TA, TA is the transmit pair. The pair designated RA, RB is the receive pair.**

Table 81
NT5K19 Flexible E&M AC15 Trunk connections for NT8D37 I/O panel connectors B,F,L,S

Lead designations	Pin	Pair Color	I/O Panel Connector				Unit Number
Type 1 mode			B	F	L	S	
TA	26	W-BL					
TB	1	BL-W					
RA	27	W-O					
RB	2	O-W					Unit 0
TA	30	W-S					
TB	5	S-W					
RA	31	R-BL					
RB	6	BL-R					Unit 1
			SLOT 1	SLOT 5	SLOT 9	SLOT 13	
TA	34	R-BR					
TB	9	BR-R					
RA	35	R-S					
RB	10	S-R					Unit 2
TA	38	BK-G					
TB	13	G-BK					
RA	39	BK-BR					
RB	14	BR-BK					Unit 3
TA	42	Y-O					
TB	17	O-Y					
RA	43	Y-G					
RB	18	G-Y					Unit 0
			SLOT 2	SLOT 6	SLOT 10	SLOT 14	
TA	46	V-BL					
TB	21	BL-V					
RA	47	V-O					
RB	22	O-V					Unit 1

Note: The cable pair designated TA, TA is the transmit pair. The pair designated RA, RB is the receive pair.

Table 82
NT5K19 Flexible E&M AC15 Trunk connections for NT8D37 I/O panel connectors C, G, M, T

Lead designations	Pin	Pair Color	I/O Panel Connector				Unit Number
AC15 mode			C	G	M	T	
TA	26	W-BL	SLOT 2	SLOT 6	SLOT 10	SLOT 14	Unit 2
TB	1	BL-W					
RA	27	W-O					
RB	2	O-W					
TA	30	W-S					Unit 3
TB	5	S-W					
RA	31	R-BL					
RB	6	BL-R					
TA	34	R-BR	SLOT 3	SLOT 7	SLOT 11	SLOT 15	Unit 0
TB	9	BR-R					
RA	35	R-S					
RB	10	S-R					
TA	38	BK-G					Unit 1
TB	13	G-BK					
RA	39	BK-BR					
RB	14	BR-BK					
TA	42	Y-O					Unit 2
TB	17	O-Y					
RA	43	Y-G					
RB	18	G-Y					
TA	46	V-BL					Unit 3
TB	21	BL-V					
RA	47	V-O					
RB	22	O-V					

Note: The cable pair designated TA, TA is the transmit pair. The pair designated RA, RB is the receive pair.

Connecting the M2250 Attendant Console

Contents

This section contains information on the following topics:

Connecting the cable 207
Connecting to system equipment 210
Connecting a major alarm 211

This chapter shows how to connect the M2250 Attendant Console to major system equipment and how to install a major alarm.

Connecting the cable

Table 83 shows cross connections for the M2250 cable.

Table 83
Cross connections for M2250 (Part 1 of 3)

Mounting cord	16/25 pair connector cable			
Lead designation	**PIN number**	**Pair number**	**Colour**	**Connected to**
TCM primary	26 1	1T R	W-BL BL-W	TN #1
TCM secondary	27 2	2T R	W-O O-W	TN #2
Attendant Supervisory Module	30 5	5T R	W-SL SL-W	TN #3

Table 83
Cross connections for M2250 (Part 2 of 3)

Mounting cord	16/25 pair connector cable			
Lead designation	**PIN number**	**Pair number**	**Colour**	**Connected to**
Spare	31 6	6T R	R-BL BL-R	
+AUX	32 7	7T R	R-O O-R	TN #4
–AUX	33 8	8T R	R-G G-R	TN #5
Spare	34 9	9T R	R-BR BR-R	
Spare	35 10	10T R	R-SL SL-R	
Emergency Transfer	36 11	11T R	BK-BL BL-BK	GND TC
Spare Spare Spare Spare	37 12 38 13	12T R 13T R	BK-O O-BK BK-G G-BK	
GND Major Alarm	39 14	14T R	BK-BR BR-BK	J3 cable from system monitor (BL-W connection) –52 V on MDF
Spare	40 15	15T R	BK-SL SL-BK	
+VPS	41 16	16T R	Y-BL BL-Y	
–VPS RTN	42 17	17T R	Y-O O-Y	

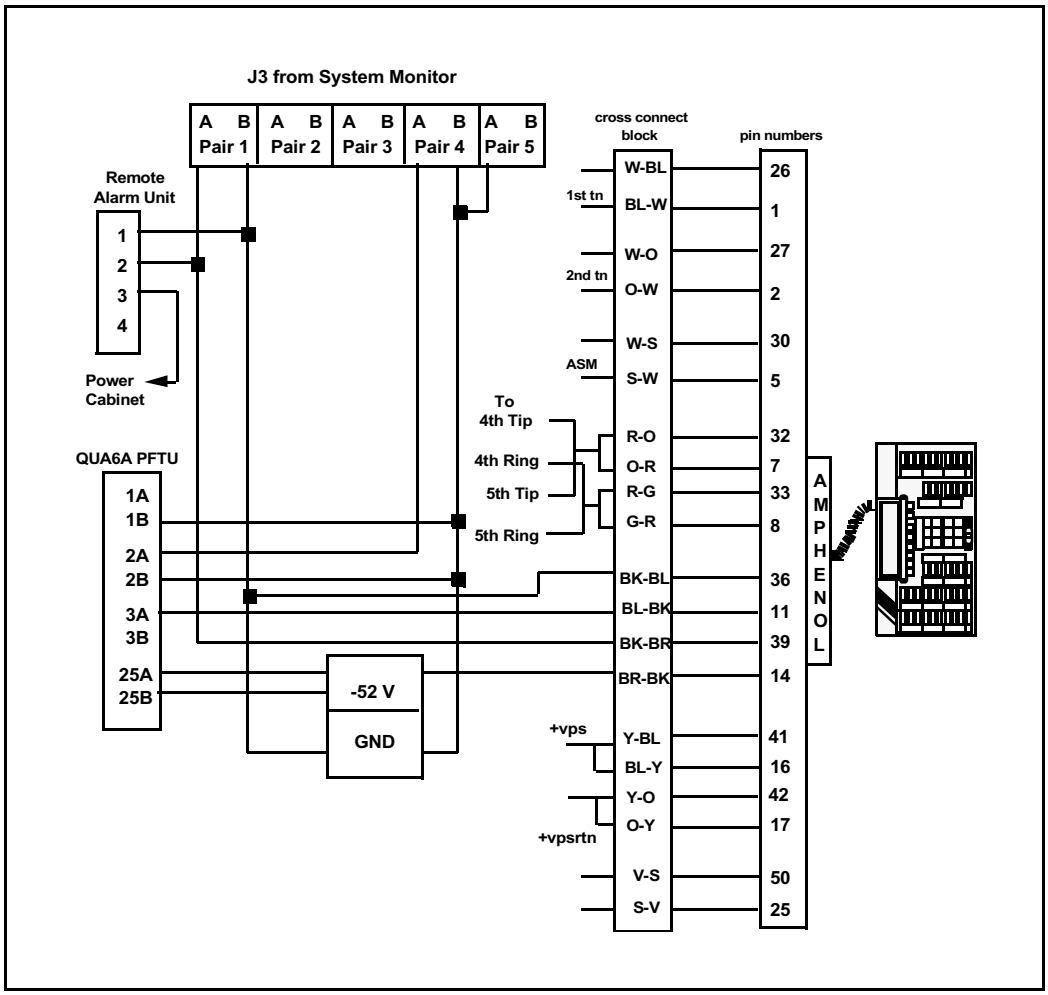
Table 83
Cross connections for M2250 (Part 3 of 3)

Mounting cord	16/25 pair connector cable			
Lead designation	**PIN number**	**Pair number**	**Colour**	**Connected to**
Spare				
Power Fail Transfer	50 25	25T R	Y-SL SL-Y	

Connecting to system equipment

Figure 31 shows how the M2250 Attendant Console is connected to the QUA6 PFTU, system monitor, and other equipment.

Figure 31
M2250 Attendant Console cross connections – UK



Connecting a major alarm

Follow this procedure to cross connect system monitor alarms at the MDF to the M2250 Attendant Console.

Procedure 1
Connect major alarm

1. Locate where cable J3 (NT8D46BH) from the system monitor is terminated at the MDF.
2. Locate where the M2250 Attendant Console cable is terminated at the MDF.
3. Locate where –52 V and GND are terminated at the MDF.
4. Cross connect according to Table 84 and Table 85.

Table 84
Major alarm J3 cable

	J3 cable from system monitor			
Function	**Pin Number**	**Color**	**Connects to**	**Cross connect to**
REMALMA	1	BL-W	MDF cross connect block	Console Ground BK-BR connection on MDF
REMALMB	2	O-W	MDF cross connect block	Ground on MDF

Table 85
Major alarm cable

	Cable from console to MDF			
Function	**Console pin Number**	**Connects to**	**Color**	**Cross connect to**
GND	39	MDF cross-connect block	BK-BR	J3 Cable from system monitor BL-W connection
ALARM	14	MDF cross-connect block	BR-BK	–52 V on MDF

Configuring the system

Contents

This section contains information on the following topics:

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AC15 and DC5 trunks 233
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EuroISDN PRI trunks 238
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Task summary list

The following is a summary of the tasks in this section:

- LD 17 – Change Password. 215
- LD 17 – Change System Parameters. 216
- LD 17 – Aries Transmission. 216
- LD 15 – Automatic Number Identification. 217
- LD 15 – Flexible Code Restriction. 217
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- LD 56 – Flexible Tone and Cadences. 220
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- LD 17 – Configure new D-Channel. 238
- LD 16 – Route Data Block, Configure a new route. 239

In order to configure the Meridian 1 for use in the UK, certain values must be entered into the software overlays. This section provides a list of mandatory prompt responses.

If a prompt does not appear in this section, one of two situations apply: either the default response is acceptable, or the response varies from installation to installation.

> ***Note:*** Not all users have the same level of access to software overlays. Refer to “Limited Access to Overlays” on page 243 for a description of the “Limited access to overlays” feature.

System configuration

System configuration data for the UK must be entered into the following overlay programs:

- LD 17: Configuration Record
- LD 15: Customer Data Block
- LD 49: New Flexible Code Restriction and Incoming Digit Conversion
- LD 56: Flexible Tones and Cadences
- LD 73: Digital Trunk interface
- LD 97: Configuration Record 2

LD 17 – Change Password.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	PWD	Password.
PWD2	x..x	Password 2.
...		
LAPW	0 – 99	Limited access to overlays Password number.
PWTP	aaaa	Password Access Type (aaaa = (OVLY) or SBA).
PWnn	x..x	Password. Valid characters are 0-9, A-Z and a-z. Length is 4 characters, 4-16 with Limited Access to Overlays (LAPW) package 164. Where: nn = number entered in response to LAPW prompt. Enter the LAPW password to be used for PWnn.
...		
OVLA	xx xx ... xx	Overlays Allowed. No change to previous definitions.
CUST	xxx	Customers.

...		
OPT	a..a	Options for password PW00.

LD 17 – Change System Parameters.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	PARM	Change system parameters.
...		
PCML	aa	Pulse Code Modulation Companding Law (aa = (MU) or A).
DTRB	xxx	Digitone Burst time in ms (xxx = (100), 50, 60, or 70).
...		
TMRK	xxx	Length of cadence increments in ms (xxx = (128) or 96).

LD 17 – Aries Transmission.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ATRN	Aries Transmission.
CODE	(0) – 2	CODEC Coding Law.
SOLR	0 – (1) – 4	Sidetone Objective Loudness Rating.
ROLR	(0) – 63	Receive Objective Loudness Rating.
...		
TOLR	(0) – 63	Transmit Objective Loudness Rating.
AGCD	YES	Automatic Gain Control Disabled.

VOLR	NO	Volume Reset.
HRLR	(0) – 8 32 – 40	Handsfree Receive Objective Loudness Rating.
HTLR	(0) – 11 32 – 54	Handsfree Transmit Objective Loudness Rating.

LD 15 – Automatic Number Identification.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	ANI_DAT	Automatic Number Identification.
CUST	0 – 99	Customer number.
ANAT	x..x	ANI attendant Billing number.
ANLD	xxxxx	ANI Listed Directory Number.
FCR_DATA	YES	New Flexible Code Restriction.
NFCR	YES	Enable new Flexible Code Restriction.
MAXT	1 – 255	Maximum number of NFCR translation tables.
FTR_DATA	YES	Customer Features and options.
DNDL	NO	Do not disturb Lamp on 500/2500 telephones.

LD 15 – Flexible Code Restriction.

Prompt	Response	Description
REQ:	NEW	Add.
TYPE:	FCR_DATA	New Flexible Code Restriction.

CUST	0 – 99	Customer number.
NFCR	YES	Enable new Flexible Code Restriction.
MAXT	1-255	Maximum number of NFCR translation tables.

LD 15 – Customer Data Block, Features and options.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	FTR_DATA	Customer Features and option.
CUST	0 – 99	Customer number.
...		
DNDL	NO	Do not disturb Lamp on 500/2500 telephones.

LD 49 – New Flexible Code Restriction and Incoming Digit Conversion.

Prompt	Response	Description
REQ	New	Add.
TYPE	FCR_DATA	NFCR data block.
CRNO	n	Code Restriction tree Number.
INIT	DENY	Initial (aaaa = ALOW or DENY).
ALOW	999	Allow.

CAUTION
The Meridian 1 should not be configured to bar access to the public emergency services (the emergency numbers 999 and 112) unless alternative arrangements have been made permitting access to the public emergency services by means that meet the requirements of the Health and Safety at Work Act and other relevant legislation. Specifically, the "ALOW 999" and "ALOW 112" entries should not be deleted unless alternative arrangements are made.

LD 56 – New Flexible Tones and Cadences**.**

Prompt	Response	Description
REQ	NEW	Add.
TYPE	MCAD	Type of data block = MCAD (Master cadence).
WCAD	0 – 255	Cadence number in the Firmware Cadence table.
CDNC	xxxx xxxx ... xxxx	Cadence.

LD 56 – New Flexible Tones and Cadences.

Prompt	Response	Description
REQ	aaa	Request.
TYPE	FCAD	Firmware Cadence data block.
WCAD	0 – 225	Cadence Number (0 is reserved for continuous tone and cannot be changed).
CDNC	xxxx xxxx ... xxxx	Cadence.
END	REPT ON OFF	End treatment for cadence.
- CYCS	x x x x	Cycles.

- WTON	(NO) YES	Define Tones associated with the cadence.
- - TONES	ttt ttt ...	NT8D17 tones (0 – 255) to be used with each phase of the cadence.

LD 56 – Flexible Tone and Cadences.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FTC	Flexible Tones and Cadences data block.
TABL	0 – 31	FTC Table number.
...		
RING	YES	Change the ringing feature definitions.
NCAD	(1) – 255	Normal Cadence.
...		
DCAD	0 – (2) – 255	Distinctive Cadence.
...		
HCCT	(NO) YES	Hardware Controlled Cadences and Tones.
DIAL		Dial tone.
...		
- XTON	0 – (4) – 255	XCT (NT8D17 Conference/TDS) Tone code.
- XCAD	(0) – 55	XCT (NT8D17 Conference/TDS) Cadence number (FCAD cadence number).
...		
SPCL		Special dial tone.
...		

- XTON	0 – (4) – 255	XCT (NT8D17 Conference/TDS) Tone code.
- XCAD	(0) – 255	XCT (NT8D17 Conference/TDS) Cadence number (FCAD Cadence number).
...		
CFDT		Call Forward Dial Tone.
...		
- XTON	0 – (4) – 255	XCT (NT8D17 Conference/TDS) Tone code.
-- XCAD	(0) – 255	XCT (NT8D17 Conference/TDS).
BUSY		Busy tone.
...		
- XTON	0 – (7) – 255	XCT (NT8D17 Conference/TDS) Tone code.
-- XCAD	0 – (16) – 255	XCT (NT8D17 Conference/TDS) Cadence number.
RGBK		Ringback tone.
...		
- XTON	0-(5)-255	XCT (NT8D17 Conference/TDS) Tone code.
- XCAD	0-(1)-255	XCT (NT8D17 Conference/TDS) Cadence number.
...		
FFCT		Flexible Feature Code Confirmation Tone.
...		
- XTON	0 – (4) – 255	XCT (NT8D17 Conference/TDS) tone code.
- XCAD	(0) – 255	XCT (NT8D17 Conference/TDS) Cadence number.
...		
OVFL		Overflow tone.

...		
- XTON	0 – (7) – 255	XCT (NT8D17 Conference/TDS) Tone code.
- XCAD	0 – (17) – 255	XCT (NT8D17 Conference/TDS) Cadence number.
...		
SCCT	(NO) YES	Software Controlled Cadences and Tones.
...		
CAMP		Camp-On tone.
...		
- XTON	0 – (3) – 255	XCT (NT8D17 Conference/TDS) Tone code.
- XCAD	(0) – 255	XCT (NT8D17 Conference/TDS) Cadence number.
- CDNC	0 – (17) – 255	MCAD software cadence number.
...		
INTU		Intrusion tone.
...		
- XTON	0 – (3) – 255	XCT (NT8D17 Conference/TDS) Tone code.
- XCAD	(0) – 255	XCT (NT8D17 Conference/TDS) Cadence number.
- CDNC	0 – (19) – 255	MCAD software cadence number.

LD 73 – Digital Trunk Interface

LD 73 is used to configure signalling codes for channel associated digital trunks. The following values must be entered to set up a SICA table, which must be used by digital trunks accessing Mercury 2100 service. Any values not listed below should be set to N (not required).

LD 73 – Digital Trunk Interface.

Prompt	Response	Description
Mercury DDI connections		
In/out calls:		
IDLE(S)	1101	Idle signal sent by switch.
IDLE(R)	1101	Idle signal received by switch.
FALT(S)	1111	Fault (DTI out of service).
FALT(R)	1111	Fault (DTI out of service).
Incoming calls:		
SEZ (R)	0101	Seize for voice or data calls from a non-SL-1.
SEZA (S)	1101	Seize for voice or data calls from a non-SL-1.
P DIGT (R)	PXXX	Decadic pulses. 'N' if DIGT (R) not required (if using DTMF signalling).
CONN (S)	0101	Connect signal sent by switch.
CONN (R)	0101	Connect signal received by switch.
CLRF (R)	0001 or 1101	Clear Forward. Depends on location, whether a disconnect clear signal is offered by the public exchange.
CLRB (S)	1101	Clear Back.
Outgoing calls:		
SEZ(S)	0101	Seize for voice or data calls to a non-SL-1.
SEZA(R)	1101	Seize Acknowledgment.
CONN(S)	0101	Connect signal sent by switch.
CONN(R)	0101	Connect signal received by switch.
CLRF(S)	1101	Clear Forward.

CLRB(R)	1101	Clear Back.
Mercury Non-DDI connections		
In/out calls:		
IDLE(S)	1101	Idle.
IDLE(R)	1101	Idle.
FALT(S)	1111	Fault (DTI out-of-service).
FALT(R)	1111	Fault (DTI out-of-service).
Incoming calls:		
SEZ(R)	1011	Sieze for voice or data calls from a non-SL-1.
SEZA(S)	1101	Seize Acknowledgment.
PCALL(R)	XXPX	Signal sent during seize by an incoming CO trunk.
CONN(S)	0101	Connect signal sent by switch.
CONN(R)	0101	Connect signal received by switch.
CLRB(S)	1101	Clear Back.
CLRF(R)	0001 or 1101	Clear Forward. Depends on location, whether a disconnect clear signal is offered by the public exchange.
Outgoing calls:		
SEZ(S)	0101	Seize for voice or data calls to a non-SL-1.
SEZA(R)	1101	Seize Acknowledgment.
CONN(S)	0101	Connect signal sent by switch.
CONN(R)	0101	Connect signal received by switch.
CLRB(R)	0001 or 1101	Clear Back. Depends on location, whether a disconnect clear signal is offered by the public exchange.

CLRF(S)	1101	Clear Forward.
In addition, pulse sending must be configured as follows:		
FEAT	LPTI	Feature.
DDIGT(S)	PXXX	Or 'N' if using DTMF signalling.

Pad Tables

In order to implement the loss plan given in Chapter 2, the following pad tables must be defined for all digital trunks using ChAS or Q.931 signalling. (DASS-2 and DPNSS trunks are automatically set to the correct values without needing to be configured here).

LD 73 – Digital Trunk Interface

Respond as follows for all mercury trunks.

Options 51C to 81C, all Mercury ChAS Trunks		
Connection Type	**Rx Code**	**Tx Code**
ONP	4	0
DSET	4	0
OPX	4	0
DTT	4	0
SDTT	4	0
DCO	4	0
DTO	4	0
NTC	4	0
TRC	4	0
DTR	4	0
VNL	4	0
SATT	4	0
ACO	4	0
ATO	4	0
PRI	4	0
PRI2	4	0
XUT	4	0
XEM	4	0

Options 51C to 81C, all ChAS and Q.931 TIE trunks		
Connection Type	**Rx Code**	**Tx Code**
ONP	0	0
DSET	0	0
OPX	0	0
DTT	0	0
SDTT	0	0
DCO	0	0
DTO	0	0
NTC	0	0
TRC	0	0
DTR	0	0
VNL	0	0
SATT	0	0
ACO	0	0
ATO	0	0
PRI	0	0
PRI2	0	0
XUT	0	0
XEM	0	0

LD 97 – System parameters.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	SYSP	System parameters.
INTN	YES	A-law.
...		
FLSH	30 130	Minimum and maximum switch hook flash time in milliseconds.
...		
P10R	68	Make break ratio for 10 pps dial pulse metering.

LD 97 – Conference/TDS/MF Sender card.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	XCTP	Conference/TDS card parameters.
CPAD	1	Use Pad values defined by switch settings.
DTMF	138	Tone table index of the first DTMF digit to be used.

Trunk configurations

This section shows how to configure the following types of trunks:

- Exchange line trunks
- DDI trunks
- AC15/DC5 TIE trunks

Trunk configuration data for the UK must be entered into the following LD programs:

- LD 14: Trunk Data Block
- LD 16: Route Data Block
- LD 23: Automatic Call Distribution
- LD 56: Flexible Tones and Cadences
- LD 17: Configuration Record 1

Exchange line trunks

To configure exchange line trunks, respond to the prompts in LDs 14 and 16 as shown in the tables that follow.

LD 14 – Exchange line trunk configuration.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	a...a	COT, DID
...		
XTRK	XCOT	Extended Public Exchange trunk card
...		
SIGL	aaa	GRD: Ground start LDC: Loop calling disconnect clear LGR: Loop calling guarded release
CLS	a...a	LOL: Long exchange line SHL: Short exchange line

LD 16 – Exchange line trunk configuration.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
...		
TKTP	COT	Public Exchange data block.
...		
CNTL	YES	changes to controls or timers
TIMR	DSI 60000	Disconnect supervision timer
	GTI 2944	Incoming guard timer
	GTO 2944	Outgoing guard timer
	ICF 384	Incoming flash timer
	OGF 384	Outgoing flash timer
	RGV 256	Ring validation timer
	LCT 128	Loop calling detection timer
...		
DTD	YES	Dial tone detection performed on this route
NEDC	ETH	Near end disconnect control from either end
FEDC	ETH	Far end disconnect control from either end
...		
DCTI	0	Time (in seconds) that an extension is allowed to ring or be on hold or call park before the trunk is disconnected.

Direct Dialing Inward trunks

To configure Direct Dialing Inward (DDI) trunks, respond to the prompts in LDs 14 and 16 as shown in the following tables.

LD 14 – Direct Dial Inward Trunk configuration.

Prompt	Response	Description
REQ	CHG	Request.
TYPE	DID	Direct Inward Dial trunk data block.
...		
XTRK	XDID	Direct Dial Inward trunk card.
...		
SIGL	LDR	Loop dial repeating signalling.
...		
STRI	IMM	Incoming start immediate.
...		
SUPN	YES	Answer and disconnect supervision required.
...		
CLS	LOL or SHL	Long DID line or short DID line.

LD 16 – Direct Dial Inward Trunk Configuration.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
...		

TKTP	DID	Direct Inward Dialling trunk data block.
...		
ICOG	ICT	Incoming trunk.
...		
CNTL	YES	Change controls or timers.
TIMR	ICF 256	Incoming flash timer.
	GTI 0	Incoming guard timer.
...		
NEDC	ETH	Near end disconnect control from either end.
FEDC	ETH	Far end disconnect control from either end.
...		
DRNG	YES	Distinctive ringing for incoming calls. **Note:** This response is recommended, not mandatory.
...		
PRDL	YES	Partial dial timing is equipped using EOD.
...		
DCTI	0	Time (in seconds) that an extension is allowed to ring or be on hold or call park before the trunk is disconnected.

AC15 and DC5 trunks

To configure AC15 and DC5 trunks, respond to the prompts in LDs 14 and 16 as shown in the tables below.

LD 14 – AC15/DC5 TIE Trunk Configuration.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	TIE	TIE Trunk data block.
...		
XTRK	XFEM	E&M trunk card
...		
STRI	IMM	Start Arrangement Incoming. IMM = Immediate
STRO	IMM	Start Arrangement Outgoing. IMM = Immediate
SUPN	YES	Answer and Disconnect Supervision required.
...		
CLS	NTC, TRC	Transmission Class of Service. NTC = Non-transmission compensated; TRC = Transmission compensated.

LD 16 – AC15/DC5 TIE Trunk configuration.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	TIE	Trunk type.
...		

TKTP	TIE	TIE trunk data block.
...		
CNTL	YES	Change controls or timers.
TIMR	ICF 1920	Incoming flash timer.
	OGF 1920	Outgoing flash timer.
...		
NEDC	ETH	Near end disconnect control from either end.
FEDC	ETH	Far end disconnect control from either end.

Automatic Call Distribution

LD 23 – Automatic Call Distribution.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ACD	Automatic Call Distribution data block.
...		
OBTN	ALL	Audible Observe Tone to all parties.

PSTN to PSTN Connection

Note: The Meridian PXML (PBX.0081) lists certain PSTN to PSTN connections as barred which are, in fact, permitted. These connections are permitted under Oftel General Variations NS/V/123/L/100010 and NS/V/1235/P/100020.

Analog PSTN to Analog PSTN and Analog PSTN to Digital PSTN connections remain barred. See Guidelines on Network Code of Practise.

It can be desirable to bar certain routes from access to each other; for instance, in order to avoid permitting call paths in a branch network that would not meet the NCOP guidelines on transmission quality.

It is recommended that all PSTN-PSTN connections are barred unless there is a specific customer requirement for the facility. This protects the customer from possible effects of fraud, through unauthorized use of the facility.

When implementing the feature, a restriction plan must first be produced. The plan should include the following information:

- For each route, when a call is incoming on the route, determine on which other routes the call can terminate.
- Which routes share the same barring restrictions?

From this information, an Access Restriction Number (ART) can be assigned to each route on a system. Routes with identical restrictions will share the same number.

LD 56 is used to generate a table, which can be visualized as a 64 by 64 matrix.

When an incoming call arrives over a given route, the ART number of the route is obtained from the Route Data Block (ART-Inc).

When the processor determines that the call is to be extended to another trunk route, the RDB of the destination route is accessed, and the route's ART number is obtained (ART-Outg).

The incoming and outgoing ART values are used as references into the ART matrix.

The identified element of the matrix will indicate if barring applies for ART-Inc-->ART-Outg.

Table 86
ART matrix

Incoming ART \ Outgoing ART	0	1	2	3	...	63
0	1	0	0	1		1
1						
2			0			
3		1				
...						
63		0		1		

0 = allowed
1 = blocked

0 = allowed
1 = barred

Trunk Barring: Example

The simplest use of the trunk barring feature to prevent PSTN to PSTN connections requires the following steps:

1 Assign an ART to PSTN trunks

2 Associate the chosen ART with all PSTN routes on the system.

Assume that 1 is to be used as the PSTN ART. If route number 9, on customer 0, is a PSTN route, then the following sequence is required in LD 56 to associate the route with the ART 1:

Table 87
Associate route with ART

Prompt	Response
REQ	CHG
TYPE	ART
CUST	
ROUT	
ART	

3 Program Incoming ART

The row of the matrix associated with ART = 1, must now be defined. Programming implies entering a list of outgoing ARTs to which connection is to be denied.

In this case, to bar PSTN to PSTN connections, the ART 1 must be included in the list of denied outgoing ARTs.The table below shows the desired result.

Table 88
ART matrix

		Outgoing ART					
		0	1	2	3		63
Incoming ART	0						
	1		*1				
	2						

The following sequence is required in LD 56:

LD 56 – Flexible Tones and Cadences.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	TBAR	Trunk Barring.
ART	1 – 63	Access Restriction Tables.
DENY	yyy yyy...	Enter ART number denied to Originating Trunk Connection (OTC).

Note: Note that if different barring restrictions are required for different types of PSTN route, for example CO and DID, then a more complex use of the feature would be needed.

EuroISDN PRI trunks

LD 17 – Configure new D-Channel.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ADAN	Action Device and Number
ADAN	xx..DCH..yy	Input/Output Number.
...		
CTYP	MSDL	Card type.
...		
DNUM	0 – 15	Device number for Input/Output ports.
...		
PORT	0 – 15	Port number.

...		
USR	PRI	User.
IFC	EURO	Interface type.
...		
CNTY	ETSI	Country.
DCHL	0 – 159	D-Channel PRI loop number.

LD 16 – Route Data Block, Configure a new route.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block
CUST	0 – 99	Customer Number
...		
ROUT	0 – 511	Route Number
...		
TKTP	a..a	Trunk type
...		
DGTP	PRI	Digital Trunk type
...		
IFC	EURO	Interface type
CNTY	ETSI	Country

Configuration of Meridian Mail outcalling timers

The timers that require setting are set through the Meridian Mail admin terminal.

Procedure 2
Configure Meridian Mail outgoing timers

1 Log onto the system.

2 Go to 1 User Administration.

3 Go to 2 View/Modify User.

4 Press F9.

5 Enter Mailbox number and press return.

6 Press F8 to review the outcalling program.

The following table appears on the screen:

Busy Retry Limit	3	Retry Interval (hh:mm)	3
No Answer Retry Limit	10	Retry Interval (hh:mm)	3
Answer Retry Limit	1	Retry Interval (hh:mm)	3

Note: Do not set the figures on the right lower than 3.

For the AMIS and Networking timers:

Procedure 3
Configure AMIS and Networking timers

1 Return to the main screen.

2 Go to 3 Voice Admin.

3 Go to 4 Outcalling Admin, then 1 Outcalling Options.

4 Use the down arrow key until the following table is shown.

Busy Retry Limit	3	Retry Interval (hh:mm)	3
No Answer Retry Limit	10	Retry Interval (hh:mm)	3
Answer Retry Limit	1	Retry Interval (hh:mm)	3

Note: Do not set the figures on the right lower than 3.

Limited Access to Overlays

For systems in the UK, the Limited Access to Overlays (LAPW) feature is used to limit customer access to certain programs. This feature prevents the customer from making modifications that may affect the integrity of the public network. There are four levels of access:

Level A – Customer

Level B1 – Maintainer 1

Level B2 – Maintainer 2

Level C – Design Authority

Table 89 shows the access levels for individual programs.

Table 89
Access to Meridian 1 overlays (Part 1 of 5)

Program	Description	Level
02	Traffic reporting	A-C
10	500/2500-type Telephones	A-C
11	Feature Telephones	A-C
12	Attendant Consoles	A-C
13	Digitone Receivers, Tone Detectors	B2-C
14	Trunks	B2-C
15	Customer Data	A,B2-C

Table 89
Access to Meridian 1 overlays (Part 2 of 5)

Program	Description	Level
16	Route Data	B2-C
17	Configuration Record	B2-C
18	Speed Call, Group Call	A,B2-C
19	Code Restriction (Unused)	C
20	Print Routine 1	A-C
21	Print Routine 2	A-C
22	Print Routine 3	A-C
23	Automatic Call Distribution, Message Centre	A,B2-C
24	Direct Inward System Access	A,B2-C
25	Move Data Blocks	B2-C
26	Group Do Not Disturb	A,B2-C
28	Automatic No. Insertion (Unused)	C
29	Memory Management	B2-C
30	Network & Signalling Diagnostic	B2-C
31	Telephone & Console Diagnostic	A-C
32	Network & Peripheral Diagnostic	B1-C
33	1.5 Mb RPE Diagnostic (Unused)	C
34	Tone & Digit Switch & DTMF Receiver Diagnostic	B2-C
35	Common Equipment Diagnostic	B2-C
36	Trunk Diagnostic 1	B1-C
37	Input/Output Diagnostic	A,B2-C

Table 89
Access to Meridian 1 overlays (Part 3 of 5)

Program	Description	Level
38	Conference Circuit Diagnostic	B2-C
39	Intergroup Switch & System Clock Generator Diagnostic	B2-C
40	Call Detail Recording Diagnostic 1	A,B2-C
41	Trunk Diagnostic 2	B1-C
42	Call Detail Recording Diagnostic 2	A,B2-C
43	Equipment Data Dump	A-C
44	Software Audit	B1-C
45	Background Signalling Diagnostic	A-C
46	Multifrequency Sender Diagnostic For Automatic No. Identification (Unused)	C
48	Link Diagnostic	A,B2-C
49	New Flexible Code Restriction	B2-C
50	Call Park	A,B2-C
51	Intercept Computer Update (Unused)	C
52	2 Mb RPE (Unused)	C
53	2 Mb RPE Diagnostic (Unused)	C
54	Multifrequency Signalling Diagnostic (Unused)	C
56	Flexible Tone & Ringing	C
57	Flexible Feature Codes	A,B2-C
58	Radio Paging	B2-C
60	Digital Trunk & Primary Rate Interface Diagnostic	B2-C

Table 89
Access to Meridian 1 overlays (Part 4 of 5)

Program	Description	Level
61	Message Waiting Lamps Reset	A,B2-C
62	1.5 Mb RPE Local Diagnostic (Unused)	C
66	Conversion (Unused)	C
73	Digital Trunk Interface	B2-C
74	DASS2/DPNSS1 Configuration	B2-C
75	DASS2/DPNSS1 Maintenance & Diagnostic	B2-C
77	Manual Print	C
80	Call Trace	A,B2-C
81	Station Print	A-C
82	Print Hunt Chain, Multiple Appearance	A-C
83	Terminal Number Sort Print	A-C
84	Station Line Designation Entry 1	A-C
85	Station Line Designation Entry 2	A-C
86	Electronic Switched Network 1	A,B2-C
87	Electronic Switched Network 2	A,B2-C
88	Authorization Code	A,B2-C
90	Electronic Switched Network 3	A,B2-C
92	Automatic Trunk Maintenance (Unused)	C
93	Multi-Tenant Service	B2-C
94	Multifrequency Signalling (Unused)	C
95	Calling Party Name Display	A-C

Table 89
Access to Meridian 1 overlays (Part 5 of 5)

Program	Description	Level
96	Primary Rate Interface D-Channel Diagnostic	B2-C
97	Configuration Record 2	B2-C
135	Common Equipment	Option 81 C-processor
137	Input/Output Diagnostic	Option 81 C-processor

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